CipherLab
User Guide

1660 Barcode Scanner

Setup labels included.

Version 1.01

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IMPORTANT NOTICES

FOR USA

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FOR CANADA

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le material brouilleur: "Appareils Numeriques," NMB-003 edictee par l'Industrie.

FOR HAND-HELD PRODUCT WITH RF FUNCTIONS

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

It only operated in hand-held used. If you only transfer data to Host by WLAN/Bluetooth, please keep the minimum distance 20 cm between machine & your body.

FOR PRODUCT WITH LASER

Per FDA and IEC standards, the scan engines described in this manual are not given a laser classification. However, the following precautions should be observed:

CAUTION

This laser component emits FDA / IEC Class 2 laser light at the exit port. Do not stare into beam.

SAFETY PRECAUTIONS

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- The use of any batteries or charging devices, which are not originally sold or manufactured by CipherLab, will void your warranty and may cause damage to human body or the product itself.
- DO NOT disassemble, incinerate or short circuit the battery.
- DO NOT expose the scanner or the battery to any flammable sources.
- For green-environment issue, it's important that batteries should be recycled in a proper way.
- Under no circumstances, internal components are self-serviceable.
- The charging and communication cradle uses an AC power adaptor. A socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the mobile computer or its peripherals to operate properly.

CARE & MAINTENANCE

- Use a clean cloth to wipe dust off the scanning window and the body of the scanner as well as the cradle. DO NOT use/mix any bleach or cleaner.
- If you want to put away the scanner for a period of time, download the collected data to a host computer when in the memory mode, and then take out the battery. Store the scanner and battery separately.
- When the scanner resumes its work, make sure the battery is fully charged before use.
- If you shall find the scanner malfunctioning, write down the specific scenario and consult your local sales representative.

RELEASE NOTES

Version	Date	Notes
1.01	July 23, 2008	▸ Modified: 1.2.1 Transmit Buffer ▸ Modified: Specifications – Bluetooth coverage (line-of-sight) up to 10 meters
1.00	May 26, 2008	Initial release

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INTRODUCTION

CipherLab's new small-form-factor 1660 Barcode Scanners are specifically designed to answer your mobile demands. The palm-sized 1660 scanners are designed to help accelerate productivity while lowering the total cost of ownership. Intensive data collection jobs are made easier with fast, accurate barcode scanning in various working environments, especially in small businesses. Integrating Bluetooth technology to small-form-factor scanners, the 1660 Bluetooth scanners are ideal for carrying in your pocket, and thus give workers tether-free mobility anytime anywhere and get job done more efficiently. This line of Bluetooth scanners has a range of up to 3 meters and a prolonged battery life that provides up to 30 hours uptime to keep business running.

Owing to the compact design, extremely low power consumption, and powerful decoding capability, CipherLab Barcode Scanners are the best choice for the following applications –

- Receiving in Retail
- Product labeling & Tracking
- Shelf Product Replenishment
- Mobile Point of Sale (POS)
- Mobile Inventory Management
- Order Picking & Staging
- Work-In-Process Tracking
- Material Flow Control
- Transportation & Distribution
- Warehousing
- Asset Management

This manual contains information on operating the scanner and using its features. We recommend you to keep one copy of the manual at hand for quick reference or maintenance purposes. To avoid any improper disposal or operation, please read the manual thoroughly before use.

Thank you for choosing CipherLab products!

INSIDE THE PACKAGE

The items included in the package may be different, depending on your order. Save the box and packaging material for future use in case you need to store or ship the scanner.

- 1660 Barcode Scanner
- Manual & Driver CD

Note: The Manual & Driver CD includes this manual and Windows-based *ScanMaster* software for configuration.

PRODUCT HIGHLIGHTS

- Small-form-factor and built tough to survive drop test
- Extremely low power consumption
- Firmware upgradeable
- Supports most popular barcode symbologies, including Reduced Space Symbology (RSS)
- Supports negative barcodes
- Supports seven scan modes, including Aiming Mode and Multi-Barcode Mode
- User feedback via LED indicator and beeper
- Beeping tone and duration programmable for Good Read
- 128 KB flash memory for Memory mode operation, storing up to 8192 scans
- Provides up to 4 KB SRAM for reserve buffer, storing up to 256 scans while getting out of range during a Bluetooth connection
- Supports Bluetooth Serial Port Profile (SPP) — for example, the 1660 scanner can transmit the scanned data to a Bluetooth-enabled computer or PDA.
- Supports Bluetooth Human Interface Device (HID) — for example, the 1660 scanner can transmit the scanned data to a Bluetooth-enabled computer or PDA, as keyboard input.
- Programmable parameters include data output format, editing format, symbologies, etc.

QUICK START

The configuration of the scanner can be done by reading the setup labels contained in this manual or via the *ScanMaster* software.

This section describes the procedure of configuring the scanner by reading the setup barcodes and provides some examples for demonstration.

Note: If Bluetooth SPP is selected for output interface, the host can directly send serial commands to configure the scanner. For example, run HyperTerminal.exe and type the 6-digit command located under each setup label. Refer to Appendix II Host Serial Commands.

Steps	Action	User Feedback if Successful
1	Power on the scanner…	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.

Note: Upon powering up, the 1660 scanner will try to establish a connection with a Bluetooth device dongle. Refer to Chapter 3 – Setting up Bluetooth Connections for details.

2	Enter the Configuration Mode… Enter Setup 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will be flashing red.
3	Read a Setup label… For example, *Enable Industrial 25 100307 Save as User Default 109986	The scanner will respond with two beeps (low-high tone) if reading a normal label.
4	Exit the Configuration Mode… Update 109999 OR Abort 109998	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

*	When any configuration error occurs...	The scanner will respond with one long beep (low tone).

ENTER CONFIGURATION MODE

For the scanner to enter the configuration mode, you must have it read the "Enter Setup" label, which can be located at the bottom of almost every even page of this manual.

- The scanner will respond with six beeps and its LED indicator will become flashing red after reading the label.

Enter Setup

For configuring scanner parameters, see “Read a Setup Label” below.

EXIT CONFIGURATION MODE

For the scanner to exit the configuration mode, you must have it read the “Update” label, which can be located at the bottom of almost every odd page of this manual. If you want to exit the configuration mode without saving any changes, have the scanner read the “Abort” label instead.

- Just like reading the “Enter Setup” label, the scanner will respond with six beeps and its LED indicator will become flashing red after reading the label. Wait for a few seconds for the scanner to restart itself.

Update

Abort

DEFAULT SETTINGS

SAVE USER SETTINGS AS DEFAULTS

For the scanner to keep the customized settings as user defaults, you must have it read the “Save as User Defaults” label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the “Update” label, the current settings will be saved as user defaults.

Save as User Defaults

109986

RESTORE USER DEFAULTS

For the scanner to restore the user defaults, which you have saved earlier, you must have it read the “Restore User Defaults” label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the “Update” label, all the parameters of the scanner will return to their customized values.

Restore User Defaults

109987

RESTORE SYSTEM DEFAULTS

For the scanner to restore the factory defaults, you must have it read the “Restore System Defaults” label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the “Update” label, all the parameters of the scanner will return to their default values.

Restore System Defaults

109993

Note: The system default value (if there is) for each setting is indicated by an asterisk “*”.

READ A SETUP LABEL

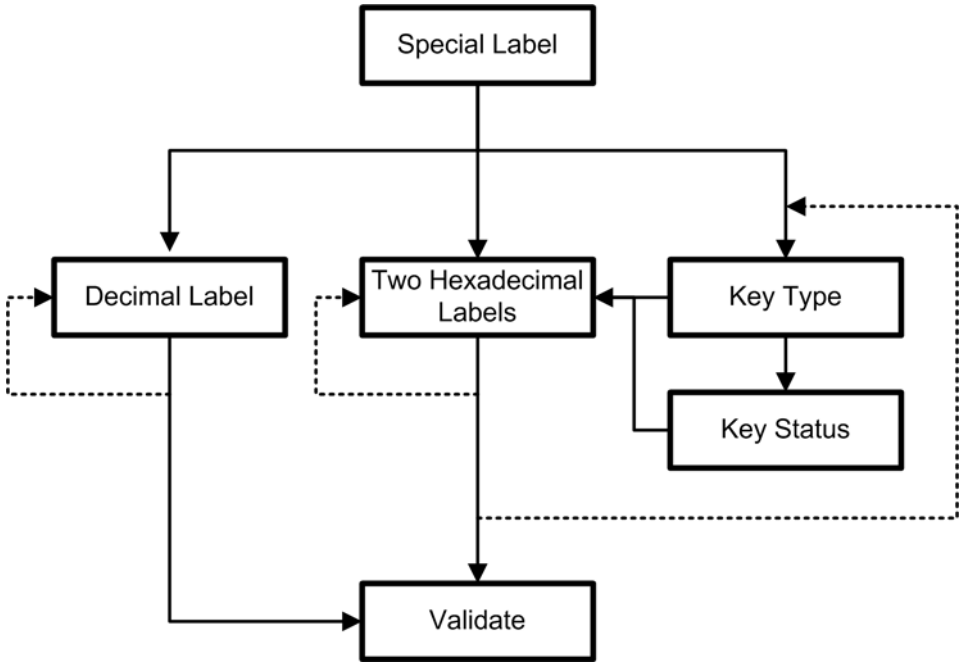
CONFIGURE PARAMETERS

For most of the scanner parameters, only one read is required to set them to new values. The scanner will respond with two beeps when each parameter is set successfully.

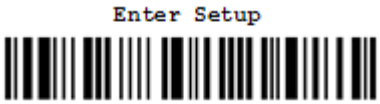
But for a number of special parameters, multiple reads are required to complete the setting. In this case, the scanner will respond with a short beep to indicate it needs to read more setup labels. These special parameters may require reading one or more setup labels, such as

- Numeric labels, say, for keyboard type, inter-character delay, length qualification
- Hexadecimal labels, say, for character strings as prefix, suffix, etc.
- When “Bluetooth HID” is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when “Normal Key” is selected for Key Type.

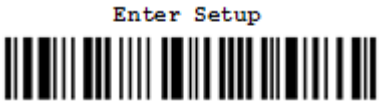
To complete the configuration of these special parameters, it requires reading the “Validate” label, and the scanner will respond with two beeps (low-high tone) to indicate the input values are validated.



The example below shows how to set numeric parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode… 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup label... For example, **Normal label** **Normal label** **Special label** **Decimal label or labels**	Read the “Decimal Value” label(s). ▸ Refer to Appendix IV “Decimal System” The scanner will respond with two beeps (low-high tone) when the input values are validated.
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

The example below shows how to set string parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner…	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode… 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup label… For example, **Special label**	The scanner will respond with one short beep if reading a special label such as “Prefix Code”, indicating the setup requires reading more labels.
		When “Bluetooth HID” is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when “Normal Key” is selected for Key Type.
		▸ Refer to Appendix III
	Hexadecimal labels	Read the “Hexadecimal Value” labels for the desired character string. For example, read “2” and “B” for the scanner to prefix the character “+”.
		▸ Refer to Appendix IV “Hexadecimal System”
		The scanner will respond with two beeps (low-high tone) when the input values are validated.
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

LIST THE CURRENT SETTINGS

The current settings of all scanner parameters can be sent, via Bluetooth SPP, to the host computer for user inspection. The listing includes ten pages as shown below. You can select the page of interest by having the scanner read the “List Page x” label. The scanner will respond with two beeps (low-high tone) and send the selected page to the host immediately.

List Page 1

List settings regarding Interface, Buzzer, and Other Scanner Parameters

List Page 2

List settings regarding Prefix, Postfix, and Length Code Setting

List Page 3

List settings regarding Code ID

List Page 4

List settings regarding: Readable Symbologies

List Page 5

List settings regarding Symbology Parameters (1/3)

List Page 6

List settings regarding Symbology Parameters (2/3)

List Page 7

List settings regarding Symbology Parameters (3/3)

List Page 8

List settings regarding Editing Format 1

List Page 9

List settings regarding Editing Format 2

List Page 10

List settings regarding Editing Format 3

List Page 11

List settings regarding Editing Format 4

List Page 12

List settings regarding Editing Format 5

Chapter 1

UNDERSTANDING THE BARCODE SCANNER

This chapter explains the features and usage of the barcode scanner.

IN THIS CHAPTER

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1.9 Effective Decoding Area 30
1.10 Negative Barcodes 32
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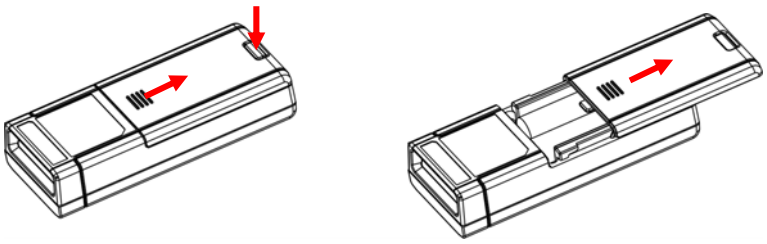
1.1 BATTERY

The scanner is powered by two AAA Alkaline batteries. During normal operation, the scanner can work for over 30 hours or 28,000 scans (based on UPC-E barcodes, 1 scan per 5 seconds). For intensive data collection, you may prepare spare batteries for non-stop operation.

Note: The 1660 scanner can be configured to save battery power. Refer to settings of "Auto Power Off", "Sniff Mode", as well as "Low Battery Alarm".

1.1.1 INSTALLING THE BATTERY

1) Hold the scanner face down in one hand.
2) Press the battery lid release and slide the battery lid.
3) Remove the battery lid by the other hand.



4) Install two AAA Alkaline batteries into the battery compartment, each in the right direction.

5) Replace the battery lid and lock it firmly.

1.1.2 HOW TO OPERATE THE SCANNER

Turn on the scanner...

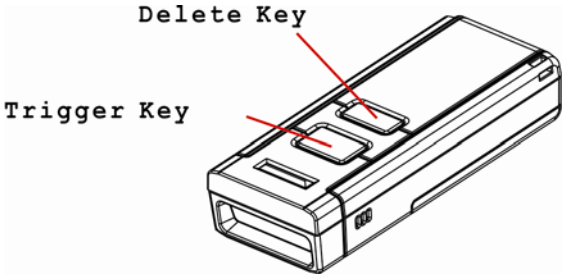
Press the [Delete] key for 3 seconds. The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.

Turn off the scanner...

Press the [Delete] key for 2 seconds. The scanner will respond with two short beeps (high tone) and the LED will finally become solid red. Release the key then.

Delete the last collected data when in memory mode ...

Press the [Delete] key. The scanner will respond with two short beeps (high tone) and the LED will become solid red. Before the LED goes off (within 1 second), press the [Delete] key again to confirm the deletion.



1.1.3 AUTO POWER OFF

Specify the time interval (1~254 min.; 0= Disable) for the scanner to automatically turn off in the following circumstances. By default, it is set to 10 minutes. If this feature is not desired, set it to 0.

Auto Power Off before establishing a Bluetooth connection successfully...

The 1660 scanner will stay active for 1 minute waiting for a connection request from the host (SPP) or trying to connect to the host (HID). Its CPU is running at full speed, and the LED is flashing blue (On/Off ratio 1:1).

If it fails to connect within 1 minute, the scanner will become inactive to save power for the remaining period of time (the specified value minus 1 minute). Its CPU is running at low speed, and the LED is flashing red (On/Off ratio 20 ms: 3 sec).

Press the [Trigger] key to wake up the scanner when it becomes inactive, and the scanner will stay active for 1 minute again.

If it fails to connect again and again, and finally stays inactive until the specified time interval has elapsed, the scanner will automatically turn off in order to conserve battery power.

Hold down the [Delete] key for 3 seconds to turn it on. On your computer, you will have to search Bluetooth devices again.

Enter Setup

Auto Power Off after establishing a Bluetooth connection successfully...

Once a Bluetooth connection is established successfully, if the scanner is idle during the specified time interval, it will automatically turn off as well. However, the scanner will resume connection with the host upon powering on again, as long as the host application is running.

Auto Off after 0~254 minutes (*10)

101000

1) Read the label above to specify the time interval before the scanner automatically turns off.
2) Read the "Decimal Value" label on page 141. For example, read "1" and "5" for the scanner to automatically turn off after being idle for 15 minutes.
3) Read the "Validate" label on the same page to complete this setting.

Update

1.2 MEMORY

The collected data can be sent back to a host computer one by one via the transmit buffer (SRAM) or stored in flash memory when the scanner is set to Memory mode.

1.2.1 TRANSMIT BUFFER

The scanner is designed to send any collected data to a host computer one by one via the transmit buffer (SRAM). Upon reading a barcode successfully, the scanner responds with one short beep (high tone) and its LED indicator becomes solid green and goes off quickly. However, the host computer may not receive the data immediately if getting out of range. With the 1 KB transmit buffer, the scanner can ignore the transmission status and keep on reading barcodes until the buffer is full. A warning is given when the transmit buffer it full — the scanner will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly.

- You are advised to get back to range if using Bluetooth.

Note: The 1 KB transmit buffer on the scanner can hold as many as 64 scans based on EAN-13 barcodes. Data will be cleared out once the scanner is turned off or running out of battery power!

1.2.2 MEMORY MODE

The scanner keeps 128 KB flash memory for memory mode operation. When the 1660 scanner is in memory mode, it means Bluetooth connection is disabled.

Enable Memory Mode

100237

*Disable Memory Mode

100236

Warning: Bluetooth cannot work unless memory mode is disabled.

Enter Setup

Memory Data Delay

You may set a delay between each data record while transmitting data back to the server.

*None

100238

250 ms

100239

500 ms

100240

1 sec

100241

2 sec

100242

3 sec

100243

5 sec

100244

8 sec

100245

Update

Send Data

The 128 KB flash memory on the scanner can store up to 8192 scans based on EAN-13 barcodes. When it is used up, the scanner will respond with two short beeps (high-low tone) as a warning. You are advised to send data to the server immediately. Select a desired interface for transmission. For example, disable memory mode and use Bluetooth SPP to transmit data.

Send Data

109918

Clear Data & Confirm

Even though data has been sent back to the server, the flash memory is still occupied unless you erase the memory by having the scanner read two labels – “Clear Data” and “Confirm”.

1. Read the “Clear Data” label to clear the flash memory.
2. Read the “Confirm” label to confirm the action.

Clear Data

109916

Confirm

109917

Enter Setup

1.3 LED INDICATOR

The triple-color LED on top of the scanner is used to provide user feedback. For example, the LED becomes solid red and goes off quickly upon powering on or running out of transmit buffer. You may tell the difference by the beeps – you will hear a long beep of high tone when powering on the scanner, and a long beep of low tone when the transmit buffer becomes full.

LED – Red/Green/Blue	Meaning
Green and goes off quickly, then becomes red, and finally goes off when the [Delete] key is released.	Power off
Red, and goes off quickly	▸ Power on, with one long beep (high tone) ▸ Transmit buffer full, with one long beep (low tone) ▸ Memory full, with two short beeps (high-low tone)
Green, and goes off quickly	Good Read, with one short beep (high tone) and beeper pitch and duration programmable
Flashing blue (On/Off ratio 1:1) for one minute waiting for connection and goes off, then becomes flashing red (On/Off ratio 20 ms:3 sec)	Waiting for connection only while the LED is flashing blue — ▸ SPP: waiting host to connect ▸ HID: trying to connect to host
Flashing blue (On/Off ratio 1:1)	Dynamic PIN code request from host (flashing more quickly than waiting connection)
Flashing blue (On/Off ratio 1:6)	Bluetooth connection established
Flashing blue and red	Dynamic PIN code input error
Flashing red (On/Off ratio 20 ms: 3 sec)	CPU running at low speed, for example, after Bluetooth connection out of range
Flashing red	Configuration Mode

1.3.1 GOOD READ LED

*Enable Good Read LED

Disable Good Read LED

Enter Setup

1.4 BEEPER

The scanner has a buzzer to provide user feedback in various operating conditions.

Beeping	Meaning
One long beep, high tone	Power on, with red LED on and off quickly
two short beeps, high tone	Power off, with green LED on and off quickly, and finally red LED on
One short beep, high tone ▸ Programmable, default to 4 KHz	Good Read, with green LED on and off quickly
Six short beeps ▸ High-low tone repeats three times	▸ Enter Configuration Mode, with red LED flashing ▸ Exit Configuration Mode
Two short beeps, low-high tone	Setup label read successfully
One short beep, high tone	More setup label required
One long beep, low tone	▸ Transmit Buffer Full, with red LED on and off quickly ▸ Configuration Error (Wrong label…)
Two short beeps, high-low tone	Memory Mode – Memory Full, with red LED on and off quickly
Two long beeps, high-low tone	Multi-Barcode Mode – Buffer Full
Three short beeps ▸ Tone ascending from low to high	▸ Bluetooth connection established, with blue LED flashing ▸ Bluetooth connection resumed, with blue LED flashing
Three short beeps ▸ Tone ascending from high to low	Bluetooth connection out of range or suspended

1.4.1 BEEPER VOLUME

Mute

Minimum Volume

Medium Volume

*Maximum Volume

Enter Setup

1.4.2 GOOD READ BEEP

Frequency

8 kHz

101001

* 4 kHz

101002

2 kHz

101003

1 kHz

101004

Duration

*Shortest

101005

Shorter

101006

Longer

101007

Longest

101008

Update

1.4.3 LOW BATTERY ALARM

By default, “2.6 V (Alkaline)” is selected for low battery level. When the battery level inside the 1660 scanner reaches 2.6 V, it will activate the beeper to give a warning. If you are using Ni-MH batteries, select “2.1 V (Ni-MH)”.

No Alarm

101017

* 2.6 V (Alkaline)

101018

2.1 V (Ni-MH)

101019

Enter Setup

1.5 SEND “NR” TO HOST

The scanner can send the “NR” string to the host to notify the No Read event.

Enable

100267

*Disable

100266

Update

1.6 SCAN MODES

There are seven scan modes supported – select the scan mode that best suits the requirements of a specific application. Refer to the comparison table below.

Scan Mode	Start to Scan				Stop Scanning			
	Always	*Press trigger once*	*Hold trigger*	*Press trigger twice*	*Release trigger*	*Press trigger once*	*Barcode being read*	*Timeout*
Continuous mode	✓							
Test mode	✓							
Laser mode			✓		✓		✓	✓
Auto Off mode		✓					✓	✓
Auto Power Off mode		✓						✓
Aiming mode				✓			✓	✓
Multi-Barcode mode			✓		✓			

Note: By default, the scan mode is set to Laser mode.

Enter Setup

1.6.1 CONTINUOUS MODE

The scanner is always scanning.

- After a successful decoding, the removal of barcode is required. It is not allowed to proceed to decode until the decoding delay time has passed.
- To decode the same barcode repeatedly, move away the barcode and put it back again and again for scanning.

Note: Refer to “Delay between Re-read”.

Continuous Mode

100201

Decoding Delay

Set the time interval between each decoding.

*Disable

100227

0.5 sec

100228

1 sec

100229

2 sec

100230

Update

1.6.2 TEST MODE

The scanner is always scanning.

- Capable of decoding the same barcode repeatedly without removing it, for testing purpose.

Test Mode

100207

1.6.3 LASER MODE

The scanner will start scanning once the trigger is hold down.

- The scanning won't stop until (1) a barcode is decoded, (2) the pre-set timeout expires, or (3) you release the trigger.

Note: Refer to “Scanning Timeout”.

*Laser Mode

100206

1.6.4 AUTO OFF MODE

The scanner will start scanning once the trigger is pressed.

- The scanning won't stop until (1) a barcode is decoded, and (2) the pre-set timeout expires.

Note: Refer to “Scanning Timeout”.

Auto Off Mode

100200

Enter Setup

1.6.5 AUTO POWER OFF MODE

The scanner will start scanning once the trigger is pressed.

- The scanning won't stop until the pre-set timeout expires, and, the pre-set timeout period re-counts after each successful decoding.

Note: Refer to “Delay between Re-read” and “Scanning Timeout”.

Auto Power Off Mode

100202

1.6.6 AIMING MODE

The scanner will aim at a barcode once the trigger is pressed, and start scanning when the trigger is pressed again within one second.

- The scanning won't stop until (1) a barcode is decoded, and (2) the pre-set timeout expires.

Aiming Mode

100208

Aiming Timeout

You can limit the aiming time interval (1~15). By default, the scanner time-out is set to 1 second.

Aiming Time-Out after 1~15 seconds (*1)

100226

1. Read the label above to specify the time interval before aiming ends. (It is set to 1 by default.)
2. Read the “Decimal Value” label on page 141. For example, read “1” and “0” for the scanner to automatically shut down after being idle for 10 seconds.
3. Read the “Validate” label on the same page to complete this setting.

Update

1.6.7 MULTI-BARCODE MODE

The scanner will be scanning as long as the trigger is held down, capable of decoding not only one single barcode but a concatenation of unique barcodes.

- The scanning won't stop until you release the trigger.

Multi-Barcode Mode

100209

Note: (1) A barcode is considered unique when its Code Type or data is different from others.
(2) Multi-Barcode Mode cannot work with "Multi-Barcode Editor".

1.7 SCANNING TIMEOUT

Specify the scanning time interval (1~254 sec.; 0= Disable) when the scan mode is set to any of the following –

- Laser mode
- Auto Off mode
- Auto Power Off mode
- Aiming mode

Scanner Time-Out after 0~254 seconds (*10)

100235

1) Read the label above to specify the time interval before the scan engine times out.
2) Read the "Decimal Value" label on page 141. For example, read "1" and "5" for the scanner to automatically shut down after being idle for 15 seconds.
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

1.8 DELAY BETWEEN RE-READ

This is also referred to as the “Blocking Time”, which is used to prevent the scanner from accidentally reading the same barcode twice when the scan mode is set to any of the following –

- Continuous mode
- Auto Power Off mode

100 ms

100216

200 ms

100217

* 400 ms

100218

800 ms

100219

1 sec

100220

2 sec

100221

3 sec

100222

5 sec

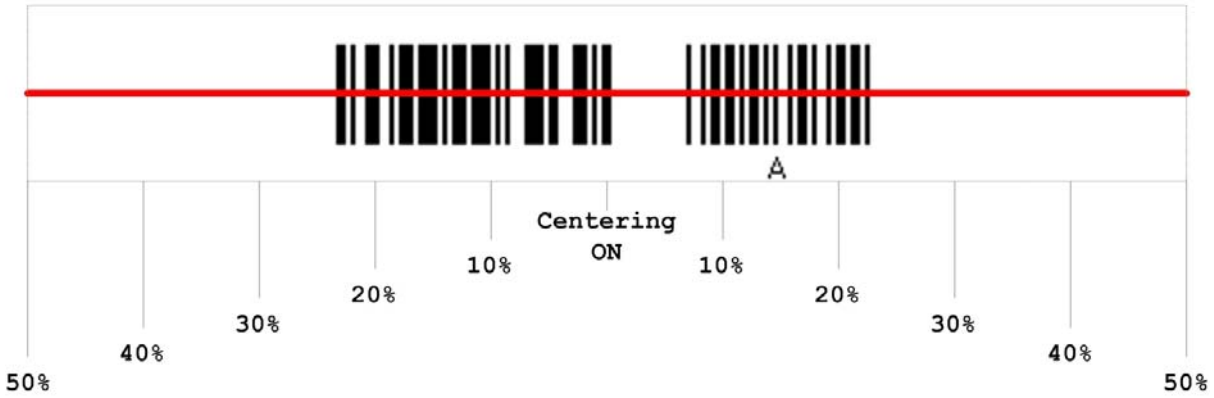
100223

Update

1.9 EFFECTIVE DECODING AREA

By default, the effective decoding area is 100% covered by the scanned area. However, you may narrow down the decoding area to prevent reading the wrong barcode when a number of barcodes are printed closely. The scanner will only read barcodes that appear in the effective decoding area.

Read the label “Centering On” and specify the percentage to narrow down the decoding area. For example, read “Left 10%” and then “Right 30%” for the scanner to decode barcode “A” only.



1.9.1 POSITIONING WINDOW

Centering On

*Centering Off

1.9.2 ADJUSTING WINDOW

Percentage for Left Half

*Left 50%

Enter Setup

Left 40%

100281

Left 30%

100282

Left 20%

100283

Left 10%

100284

Percentage for Right Half

Right 10%

100288

Right 20%

100289

Right 30%

100290

Right 40%

100291

*Right 50%

100292

Update

1.10 NEGATIVE BARCODES

Normally, barcodes are printed with the color of the bars darker than that of the spaces. But for negative barcodes, they are printed in the opposite sense just like negative films. The spaces of negative barcodes are printed with a color darker than that of the bars. You can configure the scanner to be able to read negative barcodes.

Enable

100225

*Disable

100224

1.11 SYMBOLOGIES SUPPORTED

Most of the popular barcode symbologies are supported, as listed below. Each can be individually enabled or disabled. The scanner will automatically discriminate and recognize all the symbologies that are enabled. Refer to Chapter 4 Changing Symbology Settings for details of each symbology.

Symbologies Supported: Enable/Disable		CCD Scan Engine
Codabar		Enabled
Code 93		Enabled
MSI		Disabled
Plessey		Disabled
Telepen		Disabled
Code 128	Code 128	Enabled
	EAN-128	Disabled
	ISBT-128	Disabled
Code 2 of 5	Industrial 25	Enabled
	Interleaved 25	Enabled
	Matrix 25	Disabled
Code 3 of 9	Code 39	Enabled
	Italian Pharmacode	Disabled
	French Pharmacode	Disabled

Enter Setup

EAN / UPC	EAN-8	Enabled
	EAN-8 Addon 2	Disabled
	EAN-8 Addon 5	Disabled
	EAN-13	Enabled
	EAN-13 & UPC-A Addon 2	Disabled
	EAN-13 & UPC-A Addon 5	Disabled
	ISBN	Disabled
	UPC-E0	Enabled
	UPC-E1	Disabled
	UPC-E Addon 2	Disabled
	UPC-E Addon 5	Disabled
	UPC-A	Enabled
RSS	RSS-14	Disabled
	RSS Limited	Disabled
	RSS Expanded	Disabled

1.11.1 READ REDUNDANCY FOR ALL SYMBLOGIES

Select the level of reading security. For example,

- If "No Redundancy" is selected, one successful decoding will make the reading valid and induce the "READER Event".
- If "Three Times" is selected, it will take a total of four consecutive successful decodings of the same barcode to make the reading valid. The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets.

It is obvious that the more redundancy you select, the higher the reading security is, and thus, the slower the reading speed becomes. You will have to compromise between reading security and decoding speed.

*No Redundancy

100262

One Time

100263

Update

Two Times

Three Times

1.11.2 ADDON SECURITY FOR UPC/EAN BARCODES

You may like to enforce read redundancy (0~30 times) on UPC/EAN barcodes with addons only.

Note: UPC/EAN Addon 2 and Addon 5 must be enabled individually for this setting to take effect.

Addon Security Level (*0 ~ 30)

1) Read the label above to specify the read redundancy when missing add-ons while scanning UPC/EAN barcodes. (It is set to 0 by default.)
2) Read the "Decimal Value" label on page 141. For example, read "1" and "2" for the scanner to re-read the barcode for 12 times.
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

Chapter 2

SELECTING OUTPUT INTERFACE

In order to establish a proper connection between your computer and the scanner, we suggest that you follow these instructions –

1) Install batteries and press the [Delete] key for 3 seconds to turn on the scanner.
2) Have the scanner read the “Enter Setup” label to enter the configuration mode.
3) Have the scanner read the associated label to activate the desired interface.
   See the following sections for output interfaces supported.
4) Have the scanner read the labels for related settings.
5) Have the scanner read the “Update” label to exit the configuration mode.
6) Turn on your computer or laptop and enable Bluetooth.
   Refer to Chapter 3 – Setting up Bluetooth Connections.

Note: By default, the output interface is set to “Bluetooth HID”.

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2.1 Bluetooth HID 36
2.2 Bluetooth SPP 43

Update

2.1 BLUETOOTH HID

Refer to Chapter 3 – Setting up Bluetooth Connections for related connection settings.

Bluetooth HID Settings	Defaults
Keyboard Type	PCAT (US)
Digits Layout	Normal
Capital Lock Type	Normal
Capital Lock State	Off
Alphabets Transmission	Case-sensitive
Digits Transmission	Alphanumeric keypad
Inter-Function Delay	0 (ms)
Send “NR” to Host	Disable

2.1.1 ACTIVATE BLUETOOTH HID & SELECT KEYBOARD TYPE

By default, Bluetooth HID is activated on the 1660 scanner, and the keyboard type is set to PCAT (US). When Bluetooth HID is re-activated, you will have to select a keyboard type to complete this setting.

Activate Bluetooth HID & Select Keyboard Type …

100000

1) Read the label above to activate Bluetooth HID and select a keyboard type.
2) Read the “Decimal Value” label on page 141. Refer to the table below for the number of desired keyboard type.
3) Read the “Validate” label on the same page to complete this setting.

Keyboard Type

By default, the keyboard type is set to PCAT (US). The following keyboard types are supported –

No.	Keyboard Type	No.	Keyboard Type
64	PCAT (US)	70	PCAT (UK)
65	PCAT (French)	71	PCAT (Belgium)
66	PCAT (German)	72	PCAT (Spanish)
67	PCAT (Italy)	73	PCAT (Portuguese)
68	PCAT (Swedish)	74	PS55 A01-2 (Japanese)
69	PCAT (Norwegian)	75	User-defined table

Enter Setup

2.1.2 RESET CONNECTION

For Bluetooth HID, you can only have one scanner connected to your computer. If you want to connect the scanner to another computer, you must have it read the “Reset Connection” label first. The scanner will restart itself automatically. Then, go through the whole process to establish a new connection.

Reset Connection

Update

2.1.3 KEYBOARD SETTINGS

- Digits Layout
- Capital Lock Type
- Capital Lock Setting
- Alphabets Transmission
- Digits Transmission

Note: Bluetooth HID does not support these functions on PDAs – (1) Capital Lock Setting: Auto Detection (2) Digits Transmission: Numeric Key

Digits Layout

Select a proper layout that matches the alphabets layout. The scanner will make adjustments according to this setting.

Options	Description
Normal	Depends on the [Shift] key or [Shift Lock] setting
Lower Row	For QWERTY or QWERTZ keyboard
Upper Row	For AZERTY keyboard

*Normal

100046

Lower Row

100048

Upper Row

100049

Note: This setting is to be used with the Character Substitution setting when support to certain keyboard types (languages) is unavailable but required.

Capital Lock Type & Setting

In order to send the alphabets with correct case, the scanner needs to know the status of Caps Lock on the keyboard. Incorrect settings may result in reversed case of the alphabets being transmitted.

Enter Setup

Cap Lock Type	Description
Normal	Normal type
Capital Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. However, this does not affect the number or punctuation keys.
Shift Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. In addition, this affects the number or punctuation keys.

*Normal

100042

Capital Lock

100044

Shift Lock

100045

Capital Lock State	Description
Capital Lock OFF	Assuming that the status of Caps Lock on the keyboard is OFF, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission).
Capital Lock ON	Assuming that the status of Caps Lock on the keyboard is ON, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission). ▸ Refer to the Capital Lock Type above.
Auto Detection	The scanner will automatically detect the status of Caps Lock on the keyboard before data is transmitted; transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission). ▸ This setting is not supported on PDAs.

*Capital Lock OFF

100052

Update

Capital Lock ON

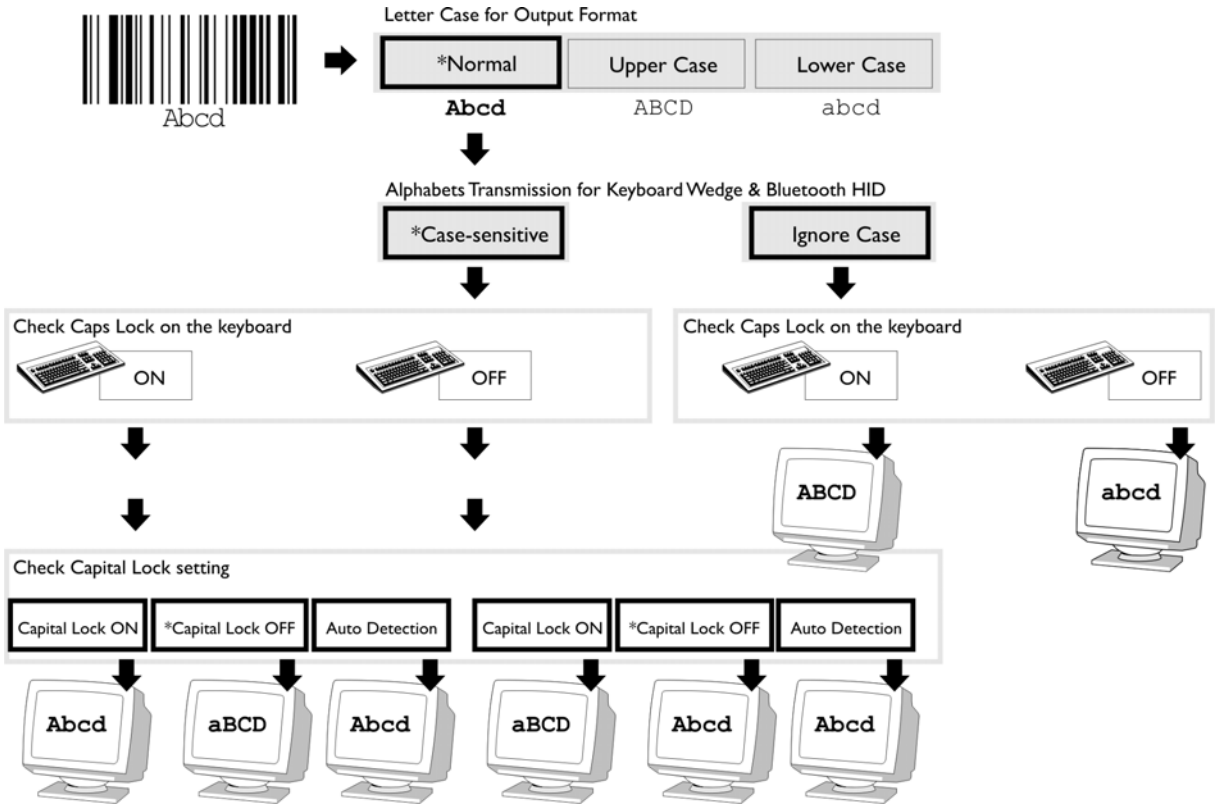
100053

Auto Detection

100054

Alphabets Transmission

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case, the status of Caps Lock on the keyboard, as well as the Capital Lock setting. Select [Ignore Case] to have alphabets transmitted according to the status of Caps Lock on the keyboard only.



*Case-sensitive

100050

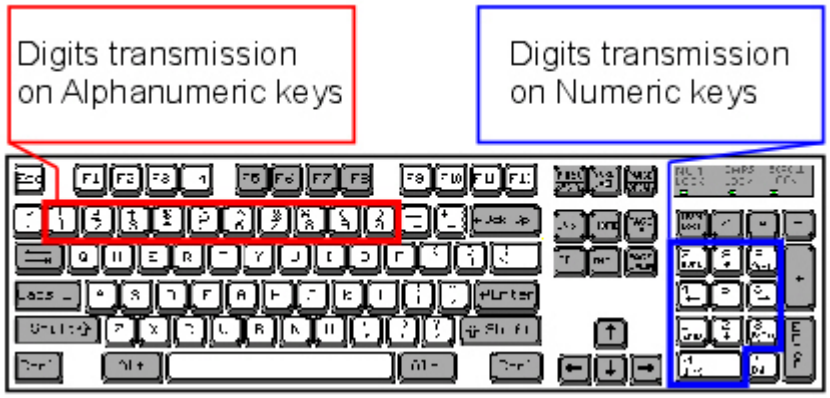
Enter Setup

Ignore Case

100051

Digits Transmission

By default, the alphanumeric keypad is used for transmitting digits. Select “Numeric Keypad” if you wish to use the keys on the numeric keypad.



*Alphanumeric Key

100040

Numeric Key

100041

Note: If you select “Numeric Keypad”, the Num Lock status of the physical keyboard should be "ON". This setting is not supported on PDAs.

Update

2.1.4 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 255, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…	255	260 millisecond

Inter-Function Delay … (*0 ~ 255)

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 141 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

2.2 BLUETOOTH SPP

Refer to Chapter 3 - Setting up Bluetooth Connections for related connection settings.

2.2.1 ACTIVATE BLUETOOTH SPP

Activate Bluetooth SPP

100003

2.2.2 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 255, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…	255	260 millisecond

Inter-Function Delay … (*0 ~ 255)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 141 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Update

2.2.3 ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Specify a value, ranging from 1 to 99 in units of 0.1 second. If no response within the specified period of time, the scanner will attempt to send the same data three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)

100013

1) Read the label above to specify the time interval for the scanner to send data and wait for a response from the host.
2) Read the "Decimal Value" label on page 141. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label on the same page to complete this setting.

ACK/NAK Error Beep

Enable Error Beep

100015

*Disable Error Beep

100014

Note: We suggest you to enable the error beep so that you will be notified of such data loss and have the scanner re-read data.

Enter Setup

Chapter 3

SETTING UP BLUETOOTH CONNECTIONS

The Bluetooth scanner can be configured to send data to a computer via a Bluetooth dongle, or directly to a Bluetooth-enabled PDA or laptop. Upon powering up, the 1660 scanner will be ready for establishing a Bluetooth connection with a Bluetooth dongle.

Below is the procedure to configure the 1660 scanner before establishing a Bluetooth connection.

1) Have the scanner read the "Enter Setup" label to enter the configuration mode.
2) Have the scanner read the desired Bluetooth interface label –
   - "Activate Bluetooth HID & Select Keyboard Type" (refer to section 2.1)

     The supported keyboard types are PCAT – US, French, German, Italian, Swedish, Norwegian, UK, Belgium, Spanish, Portuguese, and PS55 A01-2 for Japanese.
   - "Activate Bluetooth SPP" (refer to section 2.2)
3) Have the scanner read the labels related to Bluetooth settings, such as Device Name Broadcasting, Authentication & PIN Code, etc.
4) Have the scanner read the "Update" label to exit the configuration mode.
5) The scanner will stay active for 1 minute waiting for a connection request from the host (SPP) or trying to connect to the host (HID). Its CPU is running at full speed, and the LED is flashing blue (On/Off ratio 1:1).

   Once connected, when getting out of range, the scanner will respond with three short beeps (tone descending from high to low).

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3.1 Configuring Bluetooth Settings..... 46
3.2 Connecting via Bluetooth Dongle..... 48

Update

3.1 CONFIGURING BLUETOOTH SETTINGS

3.1.1 SNIFF MODE (POWER-SAVING)

This is Bluetooth standard power-saving feature, also known as Sniff mode. When enabled, the scanner will listen to the piconet at a reduced rate.

Note: By default, power-saving is enabled. When connecting more than two 1660 scanners via the Bluetooth dongle, we suggest you to disable the power-saving setting for a more reliable connection.

*Enable

Disable

3.1.2 DEVICE NAME BROADCASTING

The scanner can be configured to hide itself from other Bluetooth devices. Simply disable the device name broadcasting setting so that it won't be discovered by any other computer or PDA. However, broadcasting must be enabled for establishing an initial connection with the scanner. For example, you can disable device name broadcasting after successfully connecting the scanner to WorkStation1. Such connection will be maintained automatically unless the scanner is removed from the paired device list (called unpairing) by WorkStation1 or any changes made to authentication and the PIN code. If you want WorkStation2 to connect to the scanner, you will have to enable device name broadcasting first.

Note: By default, device name broadcasting is enabled (which is required for initial connection).

*Enable

Disable

Enter Setup

3.1.3 AUTHENTICATION

For security concerns, it is suggested that you enable authentication and specify a unique PIN code, also known as the passkey used to pair two Bluetooth devices. The scanner itself allows up to 16 characters for a PIN code. This means you will have to enter exactly the same string for your computer or PDA to connect to the scanner. If the passkey is incorrect, any connection attempt will be turned down by the scanner. When any changes are made to authentication and PIN code on the scanner side, you will have to remove the scanner from the paired device list (called unpairing) and go through the whole process to re-establish the connection.

Yes

100155

*No

100154

Entering PIN code...

By default, the Bluetooth PIN code is set to “0000”. Maximum 16 characters are allowed.

Enter PIN Code in Hexadecimal …

100150

Enter PIN Code in Decimal …

100151

1. Read one of the labels above to specify the PIN code, in decimal or hexadecimal.
2. Read the “Decimal Value” label on page 141 or the “Hexadecimal Value” label on page 142 for the desired digits or character string.
3. Read the “Validate” label to complete this setting.

Note: When using Bluetooth HID, some driver of Bluetooth dongle may not support pre-defined PIN code for authentication. In this case, make sure you disable authentication before pairing. The host PIN code will be displayed on the computer screen. Have the scanner read the setup barcode “Enter PIN Code in Decimal” or “Enter PIN Code in Hexadecimal” to input the matching PIN code quickly.

Update

3.2 CONNECTING VIA BLUETOOTH DONGLE

This is called "pairing with a Bluetooth device". The procedure for connecting the scanner to a computer via a Bluetooth dongle is pretty much the same except for the software you are using.

Note: When connecting more than two Bluetooth scanners to a computer via the Bluetooth dongle, we suggest you to disable “Sniff Mode” for a more reliable connection.

If your computer is running Microsoft Windows XP Service Pack 2 (SP2) or Windows Vista, you can use the generic software support that Windows includes, or you can use the driver that the device manufacturer provides.

Now, let’s try using the generic software support that Windows XP Service Pack 2 includes.

3.2.1 BLUETOOTH HID – ADD BLUETOOTH DEVICE WIZARD

By default, Bluetooth HID is activated on the 1660 scanner, and the keyboard type is set to PCAT (US). When Bluetooth HID is re-activated, you will have to select a keyboard type to complete this setting.

The procedure is the same as for Bluetooth SPP. Refer to steps 1~11 below.

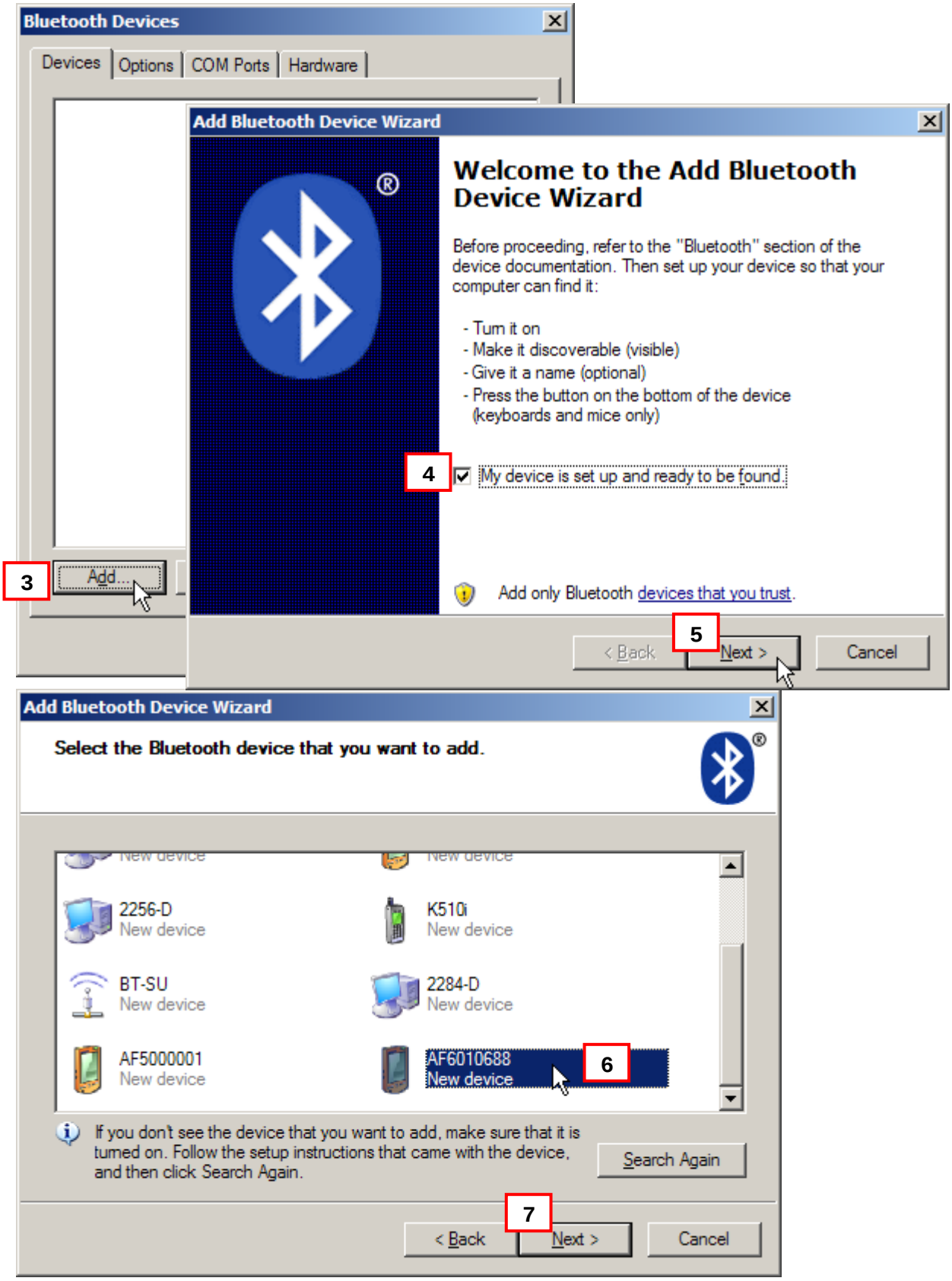
3.2.2 BLUETOOTH SPP – ADD BLUETOOTH DEVICE WIZARD

1) Connect a Bluetooth dongle to your computer, running Windows XP SP2.
2) Double-click the Bluetooth icon fro the lower right of the taskbar.

   Alternatively, you may go to **Control Panel** > **Bluetooth Devices**.
3) Click [Add] to search Bluetooth devices nearby.
4) Turn on the Bluetooth scanner with correct Bluetooth settings, such as select Bluetooth SPP or Bluetooth HID, broadcasting enabled, authentication enabled, and PIN code specified, etc. Select the check box of [My device is set up and ready to be found] on your computer.
5) Click [Next].
6) Wait for a few seconds for the Wizard to search available Bluetooth devices nearby.

   The scanner will appear with its “serial number” as the device name. You may double-check the “Serial Number” label on the scanner to ensure connecting with the correct scanner. Select the target scanner. If the target scanner does not appear on the list, click [Search Again] to refresh the list. The scanner might enter Suspend Mode now, and you can press the trigger to have it active again (=discoverable). It will then stay active for one minute and wait for PC to establish a connection.
7) Click [Next].

Enter Setup

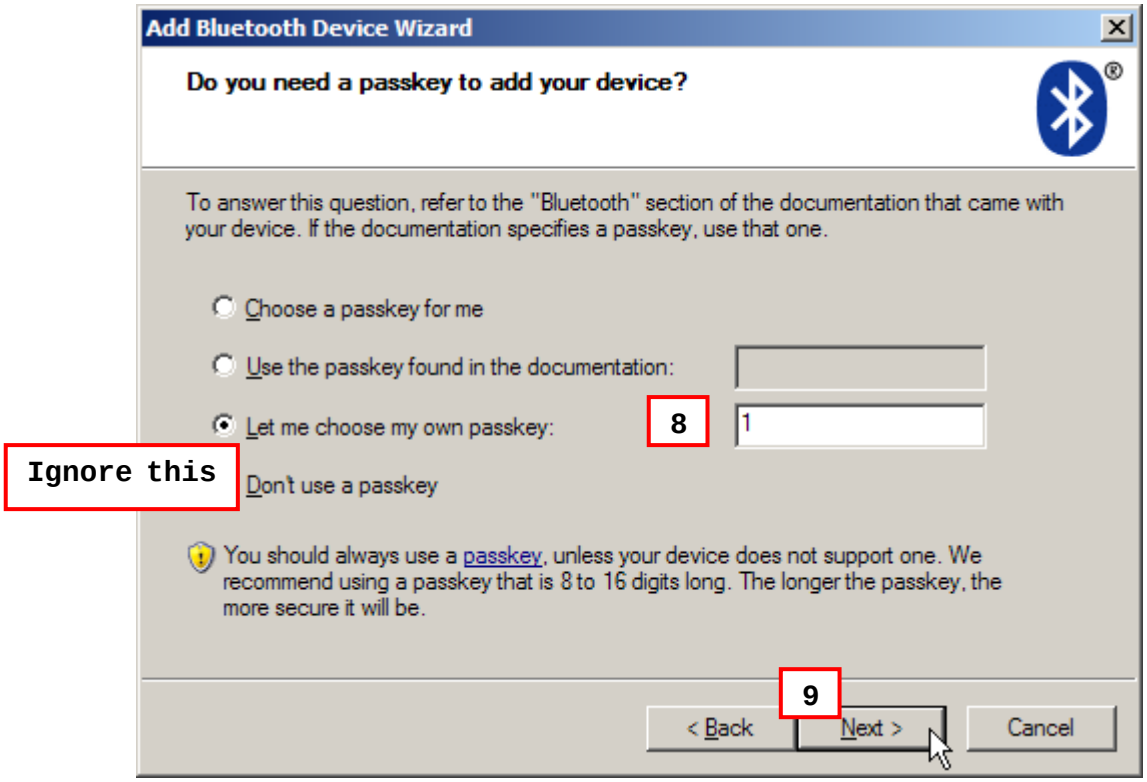

Bluetooth Devices
Devices
Options
COM Ports
Hardware
Add...
3
Add Bluetooth Device Wizard
Welcome to the Add Bluetooth Device Wizard
Before proceeding, refer to the "Bluetooth" section of the device documentation. Then set up your device so that your computer can find it:
- Turn it on
- Make it discoverable (visible)
- Give it a name (optional)
- Press the button on the bottom of the device (keyboards and mice only)
4
My device is set up and ready to be found.
Add only Bluetooth devices that you trust.
< Back
5
Next >
Cancel
Add Bluetooth Device Wizard
Select the Bluetooth device that you want to add.
2256-D
New device
K510i
New device
BT-SU
New device
2284-D
New device
AF5000001
New device
AF6010688
New device
6
If you don't see the device that you want to add, make sure that it is turned on. Follow the setup instructions that came with the device, and then click Search Again.
Search Again
7
< Back
Next >
Cancel

8) Enter the passkey for authentication, which must be exactly the same as configured for the scanner.

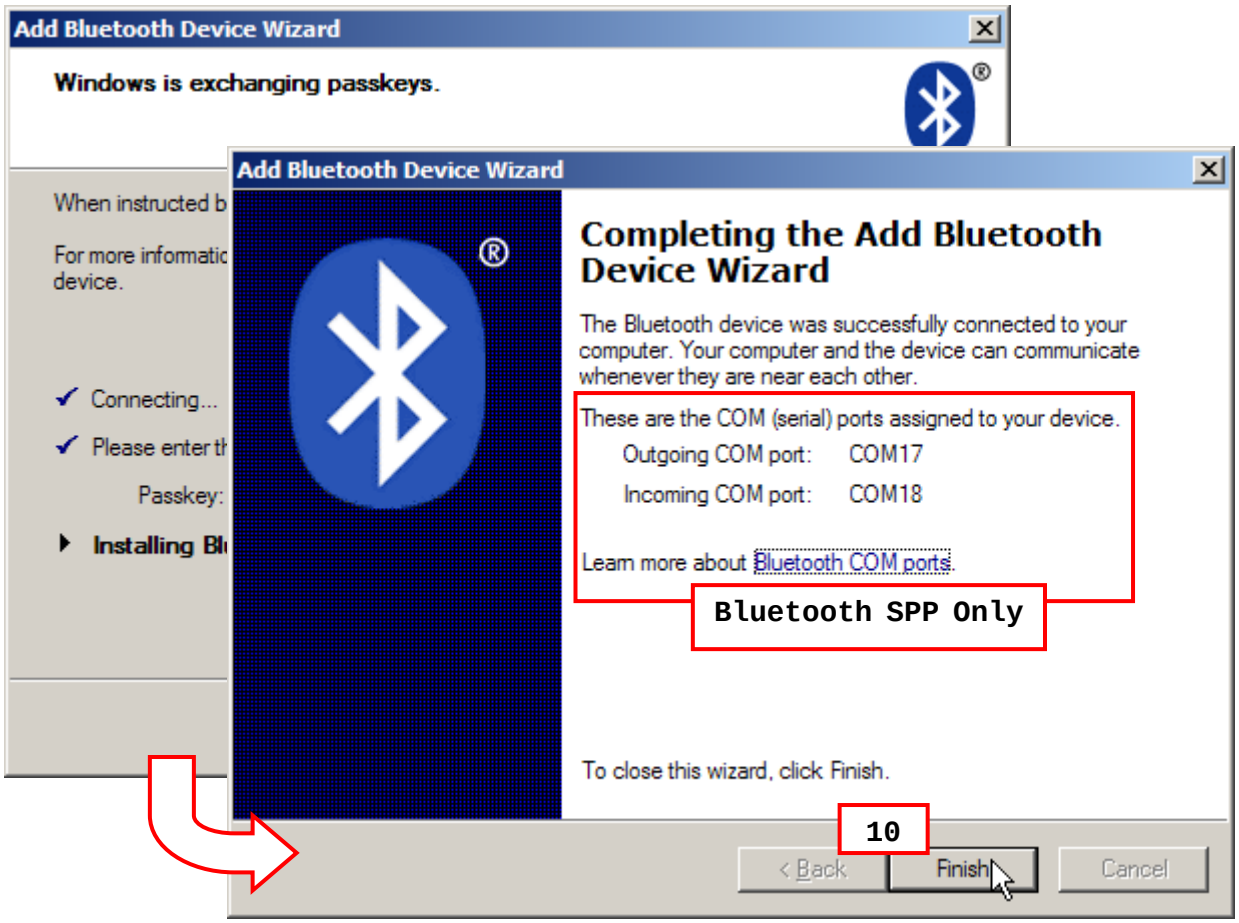
9) Click [Next].

Wait for a few seconds for Windows to exchange passkeys.

10) Click [Finish].

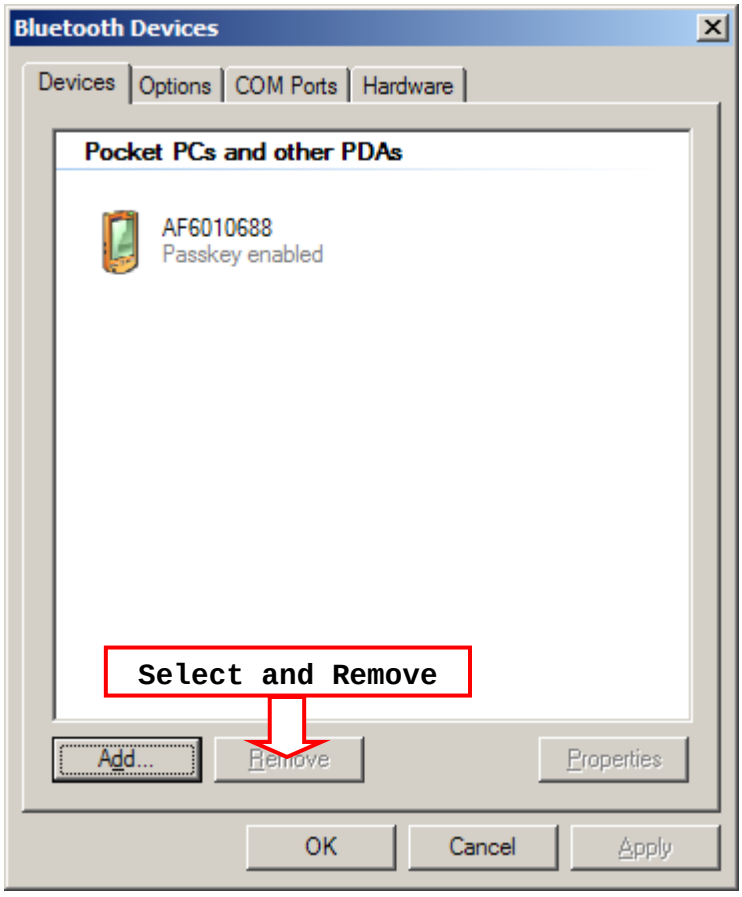

Add Bluetooth Device Wizard
Do you need a passkey to add your device?
To answer this question, refer to the "Bluetooth" section of the documentation that came with your device. If the documentation specifies a passkey, use that one.
Choose a passkey for me
Use the passkey found in the documentation:
Let me choose my own passkey:
8
1
Ignore this
Don't use a passkey
You should always use a passkey, unless your device does not support one. We recommend using a passkey that is 8 to 16 digits long. The longer the passkey, the more secure it will be.
9
< Back
Next >
Cancel

Enter Setup


Add Bluetooth Device Wizard
Windows is exchanging passkeys.
When instructed b
For more informatic
device.
Connecting...
Please enter th
Passkey:
Installing Bl
Add Bluetooth Device Wizard
Completing the Add Bluetooth Device Wizard
The Bluetooth device was successfully connected to your computer. Your computer and the device can communicate whenever they are near each other.
These are the COM (serial) ports assigned to your device.
Outgoing COM port: COM17
Incoming COM port: COM18
Learn more about Bluetooth COM ports.
Bluetooth SPP Only
To close this wizard, click Finish.
10
< Back
Finish
Cancel

II) Now the target scanner will be listed as shown below.

For Bluetooth SPP, you can have up to seven scanners connected to your computer.

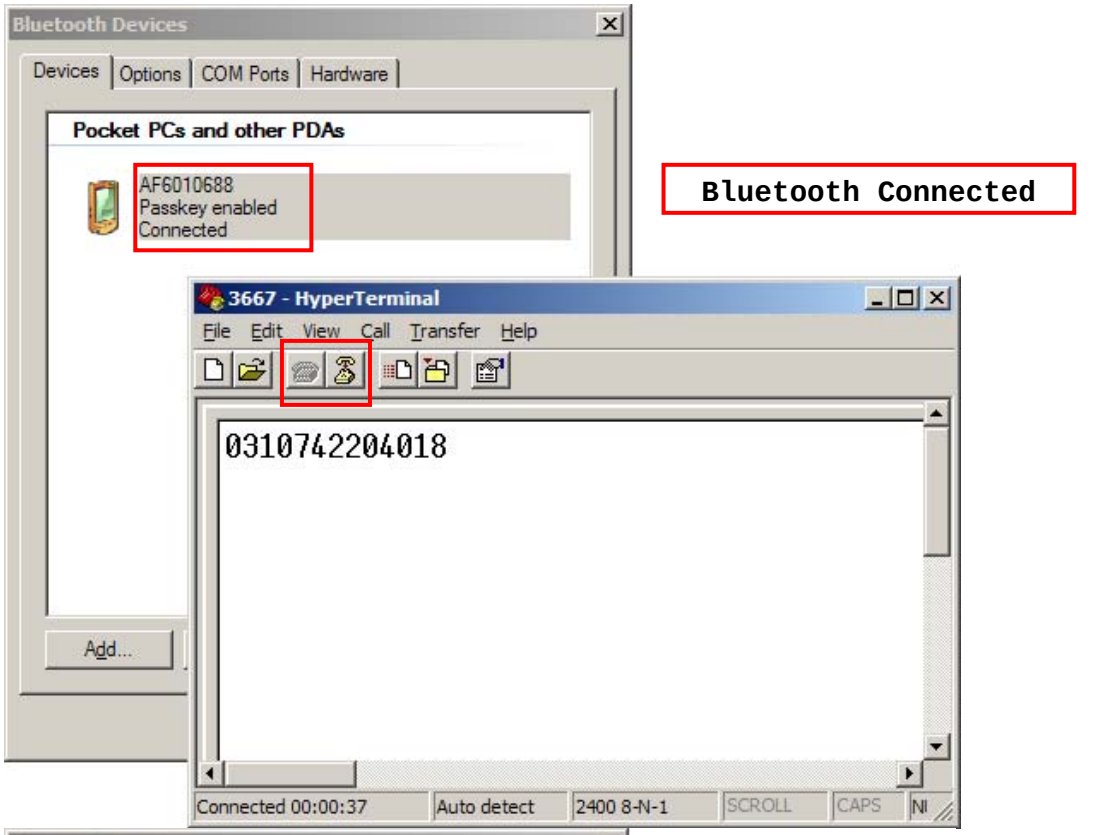


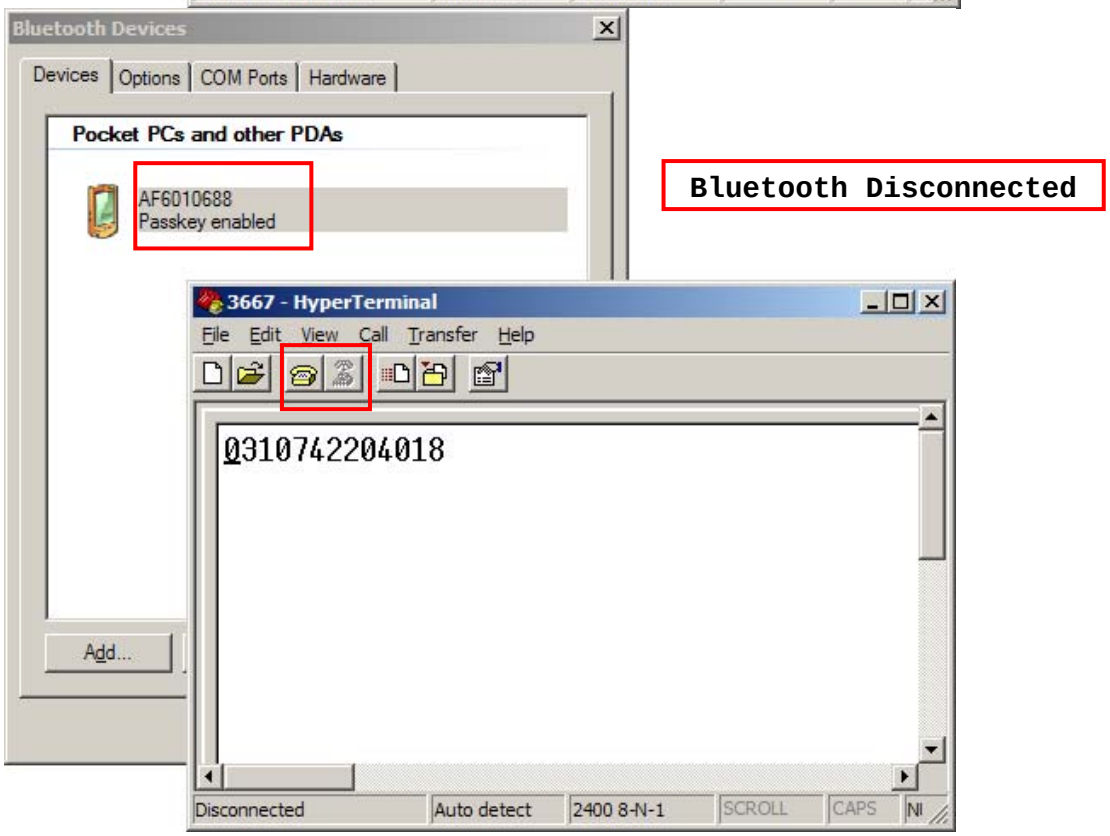
Note: When any changes are made to authentication and PIN code on the scanner side, or you want to change to use Bluetooth HID, it is suggested that you remove the scanner from the paired device list (called unpairing) and go through the whole process to re-establish the connection.

I2) Run the desired application on your computer, such as HyperTerminal.exe if using Bluetooth SPP or Notepad.exe if using Bluetooth HID.

The status of the scanner listed on the device list will be updated to “Connected”, indicating the Bluetooth connection is established successfully via the outgoing COM port if using Bluetooth SPP.

Enter Setup


Bluetooth Devices
Devices
Options
COM Ports
Hardware
Pocket PCs and other PDAs
AF6010688
Passkey enabled
Connected
Add...
3667 - HyperTerminal
File Edit View Call Transfer Help
0310742204018
Connected 00:00:37
Auto detect
2400 8-N-1
SCROLL
CAPS
Bluetooth Connected


Bluetooth Devices
Devices
Options
COM Ports
Hardware
Pocket PCs and other PDAs
AF6010688
Passkey enabled
Add...
3667 - HyperTerminal
File Edit View Call Transfer Help
0310742204018
Disconnected
Auto detect
2400 8-N-1
SCROLL
CAPS
Bluetooth Disconnected

Update

Enter Setup

Chapter 4

CHANGING SYMBOLOGY SETTINGS

In this chapter, a brief on the symbology settings is provided for your reference.

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4.17 Telepen 86
4.18 UPC-A 87
4.19 UPC-E 89

Update

4.1 CODABAR

*Enable Codabar

Disable Codabar

4.1.1 START/STOP CHARACTERS SELECTION

Select one of the four different start/stop character pairs –

* abcd/abcd

abcd/tn*e

ABCD/ABCD

ABCD/TN*E

Enter Setup

4.1.2 START/STOP TRANSMISSION

Decide whether or not to include the start/stop characters in the data being transmitted.

Transmit Codabar Start/Stop Characters

100441

*Do Not Transmit

100440

4.1.3 CLSI CONVERSION

When enabled, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode.

Apply CLSI Editing

100443

*Do Not Apply

100442

Note: The 14-character barcode length does not include start/stop characters.

Update

4.2 CODE 25 – INDUSTRIAL 25

*Enable Industrial 25

Disable Industrial 25

4.2.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

*Industrial 25
Start/Stop Pattern

Interleaved 25
Start/Stop Pattern

Matrix 25
Start/Stop Pattern

Enter Setup

4.2.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Industrial 25 Checksum

100425

*Do Not Verify

100424

4.2.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Industrial 25 Checksum

100427

Do Not Transmit

100426

Update

4.2.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If “Fixed Length” is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100601

Enable Fixed Length(s) …

100600

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100602

Min. Length (*4) Or Fixed Length 2

100603

3) Read the “Decimal Value” label on page 141 for the desired length.

4) Read the “Validate” label on the same page to complete this setting.

Enter Setup

4.3 CODE 25 – INTERLEAVED 25

*Enable Interleaved 25

Disable Interleaved 25

4.3.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

Industrial 25
Start/Stop Pattern

*Interleaved 25
Start/Stop Pattern

Matrix 25
Start/Stop Pattern

Update

4.3.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Interleaved 25 Checksum

*Do Not Verify

4.3.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Interleaved 25 Checksum

Do Not Transmit

Enter Setup

4.3.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If “Fixed Length” is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100605

Enable Fixed Length(s) …

100604

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*126) Or Fixed Length 1

100606

Min. Length (*4) Or Fixed Length 2

100607

3) Read the “Decimal Value” label on page 141 for the desired length.

4) Read the “Validate” label on the same page to complete this setting.

Update

4.4 CODE 25 – MATRIX 25

Enable Matrix 25

100311

*Disable Matrix 25

100310

4.4.1 START/STOP PATTERN SELECTION

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

Industrial 25
Start/Stop Pattern

100420

Interleaved 25
Start/Stop Pattern

100421

*Matrix 25
Start/Stop Pattern

100422

Enter Setup

4.4.2 CHECKSUM VERIFICATION

Decide whether to verify the checksum. If the checksum is incorrect, the barcode will not be accepted.

Verify Matrix 25 Checksum

100433

*Do Not Verify

100432

4.4.3 CHECKSUM TRANSMISSION

Decide whether to include the checksum in the data being transmitted.

*Transmit Matrix 25 Checksum

100435

Do Not Transmit

100434

Update

4.4.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If “Fixed Length” is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100609

Enable Fixed Length(s) …

100608

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100610

Min. Length (*4) Or Fixed Length 2

100611

3) Read the “Decimal Value” label on page 141 for the desired length.

4) Read the “Validate” label on the same page to complete this setting.

Enter Setup

4.5 CODE 39

*Enable Code 39

100301

Disable Code 39

100300

4.5.1 START/STOP TRANSMISSION

Decide whether or not to include the start/stop characters in the data being transmitted.

Transmit Code 39 Start/Stop Characters

100403

*Do Not Transmit

100402

4.5.2 CHECKSUM VERIFICATION

Decide whether or not to perform checksum verification when decoding barcodes.

- If enabled and the checksum found incorrect, the barcode will not be accepted.

Verify Code 39 Checksum

100405

*Do Not Verify

100404

Update

4.5.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit Code 39 Checksum

Do Not Transmit

4.5.4 STANDARD/FULL ASCII CODE 39

Decide whether or not to support Code 39 Full ASCII that includes all the alphanumeric and special characters.

Code 39 Full ASCII

*Standard Code 39

Enter Setup

4.6 CODE 93

You can only configure the scanner to read this symbology or not.

*Enable Code 93

100315

Disable Code 93

100314

4.7 CODE 128

You can only configure the scanner to read this symbology or not.

*Enable Code 128

100317

Disable Code 128

100316

Update

4.8 EAN-8

*Enable EAN-8
(No Addon)

100327

Disable EAN-8
(No Addon)

100326

Enable EAN-8
Addon 2

100329

*Disable EAN-8
Addon 2

100328

Enable EAN-8
Addon 5

100331

*Disable EAN-8
Addon 5

100330

Enter Setup

4.8.1 CONVERT TO EAN-13

Decide whether or not to expand the read EAN-8 barcode into EAN-13.

- If enabled, the next processing will follow the parameters configured for EAN-13.

Convert EAN-8 to EAN-13

100461

*Do Not Convert

100460

4.8.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit EAN-8 Checksum

100471

Do Not Transmit

100470

Update

4.9 EAN-13

*Enable EAN-13 (No Addon)

100333

Disable EAN-13 (No Addon)

100332

Enable EAN-13 Addon 2

100335

*Disable EAN-13 Addon 2

100334

Enable EAN-13 Addon 5

100337

*Disable EAN-13 Addon 5

100336

Enter Setup

4.9.1 ISBN CONVERSION

Decide whether or not to convert the EAN-13 barcode, starting with 978 and 979, to ISBN.

Convert EAN-13 to ISBN

100463

*Do Not Convert

100462

4.9.2 ISSN CONVERSION

Decide whether or not to convert the EAN-13 barcode, starting with 977 to ISSN.

Convert EAN-13 to ISSN

100465

*Do Not Convert

100464

4.9.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit EAN-13 Checksum

100473

Do Not Transmit

100472

Update

4.10 EAN-128

Enable EAN-128

*Disable EAN-128

4.10.1 CODE ID TRANSMISSION

Decide whether or not to include the Code ID (“]C1”) in the data being transmitted.

Transmit EAN-128 Code ID

*Do Not Transmit

4.10.2 FIELD SEPARATOR (GS CHARACTER)

Decide whether or not to apply a field separator (to convert the FNC1 control character to human readable character).

Enable Field Separator …

1) Read the label above to enable field separator.
2) Read the “Hexadecimal Value” label on page 142 for the desired character string.
3) Read the “Validate” label to complete this setting.

Enter Setup

Note: EAN-128 barcodes start with the FNC1 control character to distinguish themselves from other uses of Code 128. FNC1 is also used to separate data fields in the EAN-128 barcodes.

4.11 ISBT 128

You can only configure the scanner to read this symbology or not.

Enable ISBT 128

100355

*Disable ISBT 128

100354

Update

4.12 MSI

Enable MSI

*Disable MSI

4.12.1 CHECKSUM VERIFICATION

Select one of the three checksum calculations to perform checksum verification when decoding barcodes.

- If enabled and the checksum found incorrect, the barcode will not be accepted.

*Single Modulo 10

Double Modulo 10

Modulo 10 & 11

Enter Setup

4.12.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Last Digit Not Transmitted

100452

Both Digits Transmitted

100453

Both Digits Not Transmitted

100454

Update

4.12.3 CODE LENGTH QUALIFICATION

Because of the weak structure of the symbology, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- If “Fixed Length” is selected, up to 2 fixed lengths can be specified.

1) Read the label to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

*Enable Max./Min. Length (0 ~ 127) …

100613

Enable Fixed Length(s) …

100612

2) Read the label for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (*127) Or Fixed Length 1

100614

Min. Length (*4) Or Fixed Length 2

100615

3) Read the “Decimal Value” label on page 141 for the desired length.

4) Read the “Validate” label on the same page to complete this setting.

Enter Setup

4.13 FRENCH PHARMACODE

Enable French Pharmacode

100305

*Disable French Pharmacode

100304

4.13.1 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit French Pharmacode Checksum

100411

Do Not Transmit

100410

Update

4.14 ITALIAN PHARMACODE

Enable Italian Pharmacode

100303

*Disable Italian Pharmacode

100302

4.14.1 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit Italian Pharmacode Checksum

100409

Do Not Transmit

100408

Enter Setup

4.15 PLESSEY

Enable Plessey

100347

*Disable Plessey

100346

4.15.1 CONVERT TO UK PLESSEY

Decide whether or not to change each occurrence of the character 'A' to character 'X' in the decoded data.

Convert to UK Plessey

100447

*Do Not Convert

100446

4.15.2 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum characters (two digits) in the data being transmitted.

*Transmit Plessey Checksum

100445

Do Not Transmit

100444

Update

4.16 RSS FAMILY

4.16.1 CODE ID SELECTION

Select a desired Code ID to use – RSS Code ID "]e0" or EAN-128 Code ID "]C1".

"]C1" for RSS Code ID

100517

"]e0" for RSS Code ID (Default)

100516

4.16.2 RSS-14

Enable RSS-14 & RSS Expanded

100349

*Disable RSS-14 & RSS Expanded

100348

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS-14 Code ID

100523

Do Not Transmit

100522

Enter Setup

Application ID Transmission

Decide whether or not to include the Application ID ("01") in the data being transmitted.

*Transmit RSS-14 Application ID

100529

Do Not Transmit

100528

Checksum Transmission

Decide whether or not to include the check digit in the data being transmitted.

*Transmit RSS-14 Checksum

100481

Do Not Transmit

100480

4.16.3 RSS EXPANDED

Enable RSS-14 & RSS Expanded

100349

*Disable RSS-14 & RSS Expanded

100348

Update

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS Expanded Code ID

100527

Do Not Transmit

100526

4.16.4 RSS LIMITED

Enable RSS Limited

100351

*Disable RSS Limited

100350

Code ID Transmission

Decide whether or not to include the Code ID in the data being transmitted.

*Transmit RSS Limited Code ID

100525

Do Not Transmit

100524

Enter Setup

Application ID Transmission

Decide whether or not to include the Application ID ("01") in the data being transmitted.

*Transmit RSS Limited Application ID

Do Not Transmit

Checksum Transmission

Decide whether or not to include the check digit in the data being transmitted.

*Transmit RSS Limited Checksum

Do Not Transmit

Update

4.17 TELEPEN

Enable Telepen

100353

*Disable Telepen

100352

4.17.1 TELEPEN OUTPUT – FULL ASCII/NUMERIC

Decide whether or not to support Telepen in full ASCII code. By default, it supports ASCII mode.

- AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.

Original Telepen
(Numeric)

100485

* AIM Telepen

100484

Enter Setup

4.18 UPC-A

*Enable UPC-A (No Addon)

100339

Disable UPC-A (No Addon)

100338

Enable UPC-A Addon 2

100341

*Disable UPC-A Addon 2

100340

Enable UPC-A Addon 5

100343

*Disable UPC-A Addon 5

100342

Update

4.18.1 CONVERT TO EAN-13

Decide whether or not to expand the read UPC-A barcode into EAN-13.

- If enabled, the next processing will follow the parameters configured for EAN-13.

Convert UPC-A to EAN-13

100459

*Do Not Convert

100458

4.18.2 SYSTEM NUMBER TRANSMISSION

Decide whether or not to include the system number in the data being transmitted.

*Transmit UPC-A System Number

100477

Do Not Transmit

100476

4.18.3 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit UPC-A Checksum

100469

Do Not Transmit

100468

Enter Setup

4.19 UPC-E

*Enable UPC-E
(No Addon)

100321

Disable UPC-E
(No Addon)

100320

Enable UPC-E
Addon 2

100323

*Disable UPC-E
Addon 2

100322

Enable UPC-E
Addon 5

100325

*Disable UPC-E
Addon 5

100324

Update

4.19.1 SYSTEM NUMBER SELECTION

Decide whether to decode the ordinary UPC-E barcodes only or both UPC-E0 and UPC-E1 barcodes.

- System number 0 enabled for decoding UPC-E0 barcodes.
- System number 1 enabled for decoding UPC-E1 barcodes.

System Number 0 & 1

100479

* System Number 0 Only

100478

Warning: Because of the way system number 1 is encoded, if both system numbers are enabled, the user might suffer from short scanning UPC-A or EAN-13 barcodes into UPC-E1 barcodes.

4.19.2 CONVERT TO UPC-A

Decide whether or not to expand the read UPC-E barcode into UPC-A.

- If enable, the next processing will follow the parameters configured for UPC-A.

Convert UPC-E to UPC-A

100457

*Do Not Convert

100456

Enter Setup

4.19.3 SYSTEM NUMBER TRANSMISSION

Decide whether or not to include the system number in the data being transmitted.

Transmit UPC-E System Number

100475

*Do Not Transmit

100474

4.19.4 CHECKSUM TRANSMISSION

Decide whether or not to include the checksum character in the data being transmitted.

*Transmit UPC-E Checksum

100467

Do Not Transmit

100466

Update

Enter Setup

Chapter 5

DEFINING OUTPUT FORMAT

You may configure in which format the collected data will be output to the host computer. Barcode read by the scanner will be processed in the following sequence –

1) Perform character substitution on the data scanned.
2) Add Code ID and Length Code to the front of the data: [Code ID][Length Code][Data]
3) Process the whole data in step 2 with user formats. Data is now divided into fields by user specified rules. Refer to Chapter 6 Applying Formats for Data Editing.
4) Add Prefix Code and Suffix Code before transmission: [Prefix Code][Processed Data][Suffix Code]

IN THIS CHAPTER

5.1 Letter Case 93
5.2 Character Substitution 94
5.3 Prefix/Suffix Code 100
5.4 Code ID 101
5.5 Length Code 105
5.6 Multi-Barcode Editor 108

5.1 LETTER CASE

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case. Ignoring the original letter case, select [Upper Case] to output data in upper case only; otherwise, select [Lower Case] to output data in lower case only.

*Normal

101202

Upper Case

101203

Lower Case

101204

Update

5.2 CHARACTER SUBSTITUTION

Character substitution is performed on every occurrence of the first character specified. If only one character is specified, every occurrence of that character in the barcode will be taken away.

- The first character will be replaced by the second character(s).
- Up to three sets of character substitution can be configured.

Note: The character substitution is performed only on the barcode itself and before the processing of editing formats. It is not applicable to the Prefix/Suffix Code, Code ID, Length Code, or any Additional Field.

5.2.1 SELECT A SET FOR CHARACTER SUBSTITUION

Configure Set 1

101232

Configure Set 2

101233

Configure Set 3

101234

1) Read the label above to enable character substitution by set.

   For example, have the scanner read the “Set 1” label to configure the first set of character substitution. The scanner will respond with one short beep, high tone, to indicate more setup labels are required.

2) Read the “Hexadecimal Value” label on page 142 for the desired character string.

   For example, have the scanner read (1) “3”, “0”, “2” and “D” to replace the character [0] with a dash [-] for Set 1, and (2) “3”, “0”, “2”, “D”, “3” and “0”to replace the character [0] with a dash [- 0] for Set 2.

3) Read the “Validate” label to complete this setting. (The defined set or sets will be applied to all symbologies by default.)

Enter Setup

5.2.2 SYMBOLOGIES FOR CHARACTER SUBSTITUTION (ALL 3 SETS)

By default character substitution will be performed on all symbologies. If the character substitution is not desired with one or more symbologies, read the “Do Not Apply” label for each undesired symbologies and all the three sets will be ignored for them.

Character Substitution for Codabar

*Apply

101253

Do Not Apply

101252

Character Substitution for Code 39

*Apply

101241

Do Not Apply

101240

Character Substitution for Code 93

*Apply

101255

Do Not Apply

101254

Character Substitution for Code 128

*Apply

101257

Do Not Apply

101256

Character Substitution for EAN-128

*Apply

101259

Do Not Apply

101258

Update

Character Substitution for EAN-8 (No Addon)

*Apply

101267

Do Not Apply

101266

Character Substitution for EAN-8 Addon 2

*Apply

101269

Do Not Apply

101268

Character Substitution for EAN-8 Addon 5

*Apply

101271

Do Not Apply

101270

Character Substitution for EAN-13 (No Addon)

*Apply

101273

Do Not Apply

101272

Character Substitution for EAN-13 Addon 2

*Apply

101275

Do Not Apply

101274

Character Substitution for EAN-13 Addon 5

*Apply

101277

Do Not Apply

101276

Enter Setup

Character Substitution for French Pharmacode

*Apply

101245

Do Not Apply

101244

Character Substitution for Italian Pharmacode

*Apply

101243

Do Not Apply

101242

Character Substitution for Industrial 25

*Apply

101247

Do Not Apply

101246

Character Substitution for Interleaved 25

*Apply

101249

Do Not Apply

101248

Character Substitution for Matrix 25

*Apply

101251

Do Not Apply

101250

Character Substitution for MSI

*Apply

101285

Do Not Apply

101284

Update

Character Substitution for Plessey

*Apply

101287

Do Not Apply

101286

Character Substitution for RSS Family

*Apply

101291

Do Not Apply

101290

Character Substitution for Telepen

*Apply

101289

Do Not Apply

101288

Character Substitution for UPC-A (No Addon)

*Apply

101279

Do Not Apply

101278

Character Substitution for UPC-A Addon 2

*Apply

101281

Do Not Apply

101280

Character Substitution for UPC-A Addon 5

*Apply

101283

Do Not Apply

101282

Enter Setup

Character Substitution for UPC-E (No Addon)

*Apply

101261

Do Not Apply

101260

Character Substitution for UPC-E Addon 2

*Apply

101263

Do Not Apply

101262

Character Substitution for UPC-E Addon 5

*Apply

101265

Do Not Apply

101264

Update

5.3 PREFIX/SUFFIX CODE

By default, there is no prefix code, and [ENTER] or [CR] (Carriage Return) is configured to be suffix code. Up to 8 characters can be configured, for example, “Barcode_”, and you will have the string appear in front of the barcode read, like this – “Barcode_1234567890”.

- If “Bluetooth HID” is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when “Normal Key” is selected for Key Type. Refer to Keyboard Wedge Table.

Key Type		Key Status
Scan Code	Up to 4 scan code values are allowed.	N/A
Normal Key	Up to 8 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].

Configure Prefix

Configure Suffix

1) Read the label above to apply prefix code or suffix code separately, and follow steps 2~3. (Max. 8 characters each)

2) Read the “Hexadecimal Value” label on page 142 for the desired character string. For example, read “2” and “B” for the scanner to prefix or suffix the character [+].

3) Read the “Validate” label to complete this setting.

Enter Setup

5.4 CODE ID

Up to two characters for Code ID can be configured for each symbology. To make the Code ID configuration easier, the scanner provides five pre-defined Code ID sets that you can select one and make necessary changes on it.

- If "Bluetooth HID" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when “Normal Key” is selected for Key Type. Refer to Keyboard Wedge Table.

Key Type		Key Status
Scan Code	Up to 1 scan code values are allowed.	N/A
Normal Key	Up to 2 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift] and the character [A].

Note: "]C1" is the Code ID of EAN-128 barcodes; "]e0" is the default Code ID of RSS barcodes.

5.4.1 SELECT PRE-DEFINED CODE ID

Code ID options	Set 1	Set 2	Set 3	Set 4	Set 5
Code 39	A	C	Y	M	A
Italian Pharmacode	A	C	Y	M	A
French Pharmacode	A	C	Y	M	A
Industrial 25	C	H	H	H	S
Interleaved 25	D	I	Z	I	S
Matrix 25	E	G	G	G	S
Codabar	F	N	X	N	F
Code 93	I	L	L	L	G
Code 128	H	K	K	K	C
UPC-E	S	E	C	E	E
EAN-8	P	B	B	FF	E
EAN-13	M	A	A	F	E

UPC-A	J	A	A	A	E
MSI	V	V	D	P	M
Plessey	W	W	E	Q	P
Telepen	Z	---	---	---	---

Apply Code ID Set 1

Apply Code ID Set 2

Apply Code ID Set 3

Apply Code ID Set 4

Apply Code ID Set 5

5.4.2 CHANGE CODE ID

1) Read the label of a specific symbology below to change its code ID.
2) Read the "Hexadecimal Value" label on page 142 for the desired character string. For example, read "4" and "4" for applying the character [D] for Code ID.
3) Read the "Validate" label to complete this setting.

Enter Setup

Configure Code ID for Codabar

101456

Configure Code ID for Code 39

101450

Configure Code ID for Code 93

101457

Configure Code ID for Code 128

101458

Configure Code ID for EAN-8

101460

Configure Code ID for EAN-13

101461

Configure Code ID for French Pharmacode

101452

Configure Code ID for Italian Pharmacode

101451

Configure Code ID for Industrial 25

101453

Configure Code ID for Interleaved 25

101454

Update

Configure Code ID for Matrix 25

101455

Configure Code ID for MSI

101463

Configure Code ID for Plessey

101464

Configure Code ID for Telepen

101465

Configure Code ID for UPC-A

101462

Configure Code ID for UPC-E

101459

5.4.3 CLEAR CODE ID SETTINGS

Clear All Code ID Settings

109960

Enter Setup

5.5 LENGTH CODE

A two-digit code representing the length of barcode data (character count) can be inserted in front of data being transmitted. Such "Length" code can be individually enabled or disabled for each symbology.

Length Code for Codabar

Apply

101413

*Do Not Apply

101412

Length Code for Code 39

Apply

101401

*Do Not Apply

101400

Length Code for Code 93

Apply

101415

*Do Not Apply

101414

Length Code for Code 128

Apply

101417

*Do Not Apply

101416

Length Code for EAN-128 & RSS

Apply

101419

*Do Not Apply

101418

Length Code for EAN-8

Apply

101423

*Do Not Apply

101422

Update

Length Code for EAN-13

Apply

101425

*Do Not Apply

101424

Length Code for French Pharmacode

Apply

101405

*Do Not Apply

101404

Length Code for Italian Pharmacode

Apply

101403

*Do Not Apply

101402

Length Code for Industrial 25

Apply

101407

*Do Not Apply

101406

Length Code for Interleaved 25

Apply

101409

*Do Not Apply

101408

Length Code for Matrix 25

Apply

101411

*Do Not Apply

101410

Length Code for MSI

Apply

101429

*Do Not Apply

101428

Enter Setup

Length Code for Plessey

Apply

101431

*Do Not Apply

101430

Length Code for Telepen

Apply

101433

*Do Not Apply

101432

Length Code for UPC-A

Apply

101427

*Do Not Apply

101426

Length Code for UPC-E

Apply

101421

*Do Not Apply

101420

Update

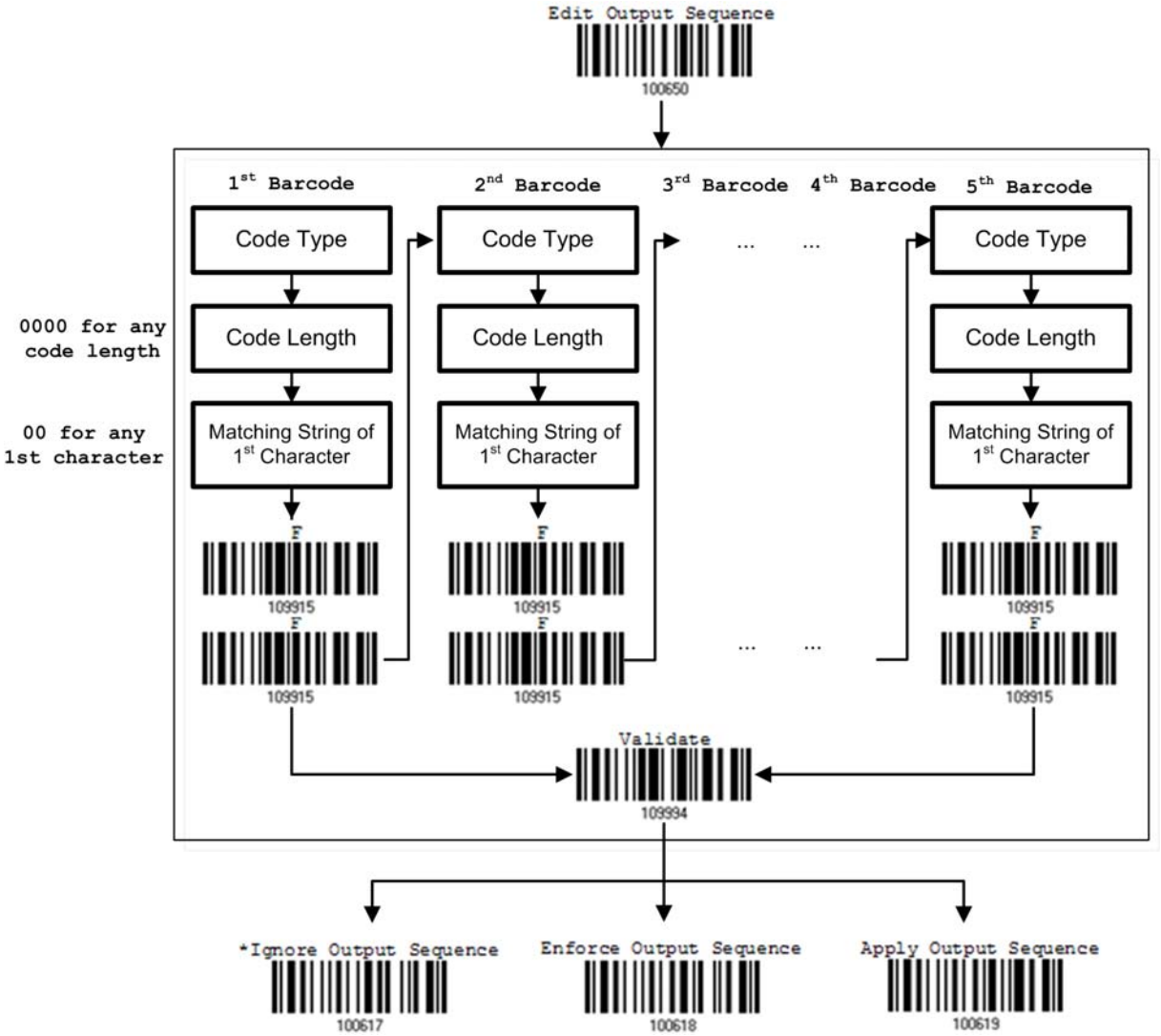
5.6 MULTI-BARCODE EDITOR

The Multi-Barcode Editor allows you to decide the output sequence of a concatenation of barcodes. Up to five barcodes can be specified.

Note: Multi-Barcode Editor cannot work with "Multi-Barcode Mode".

The barcodes that are found meeting the specified criteria below will be arranged in the desired sequence.

- Code Type
- 4-digit code length, including prefix, suffix, length code, etc.
- Matching the first character of data



Enter Setup

5.6.1 EDIT A CONCATENATION OF BARCODES

Edit Output Sequence

100650

1) Read the label above to start editing a concatenation of barcodes.

2) Code Type setting – read the "Hexadecimal Value" label on page 142 for Code Type of the (first) barcode. For example, read "4" and "1" for Code 39.

Code Type	Symbology	Code Type	Symbology
41 (A)	Code 39	4F (O)	EAN-8 with Addon 5
42 (B)	Italian Pharmacode	50 (P)	EAN-13
43 (C)	French Pharmacode)	51 (Q)	EAN-13 with Addon 2
44 (D)	Industrial 25	52 (R)	EAN-13 with Addon 5
45 (E)	Interleaved 25	53 (S)	MSI
46 (F)	Matrix 25	54 (T)	Plessey
47 (G)	Codabar (NW7)	55 (U)	EAN-128
48 (H)	Code 93	56 (V)	UPC-A
49 (I)	Code 128	57 (W)	UPC-A with Addon 2
4A (J)	UPC-E0 / UPC-E1	58 (X)	UPC-A with Addon 5
4B (K)	UPC-E with Addon 2		
4C (L)	UPC-E with Addon 5	5A (Z)	Telepen
4D (M)	EAN-8	5B ([ )	RSS-14
4E (N)	EAN-8 with Addon 2		

3) Code Length setting – read the "Decimal Value" label on page 141 for the 4-digit total length of the (first) barcode. For example, read 0065 for 65 characters or read "0000" for any length.

Note: If not reading 0000 for any length, the 4-digit length must include prefix, suffix (0x0d by default), length code, etc.

4) Matching Character setting – read the "Hexadecimal Value" label on page 142 for the 1st character that must be found matching in the (first) barcode. For example, read "4" and "1" for matching character "A" as the first character in the barcode or read "00" for any character.

5) Read twice the "F" label on page 142 ("FF") to complete the setting of each barcode.

6) Read the "Validate" label to end the editing of the barcode set.

Update

5.6.2 ACTIVATE THE CONCATENATION OF BARCODES

By default, the output sequence editing of the concatenation of barcodes is not applied.

When “Enforce Output Sequence” is enabled, all barcodes read by the scanner must meet with the criteria for the concatenation. If data is found excluded from all output sequence sets (= not meeting with the criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.

When “Apply Output Sequence” is enabled, only barcodes found meeting with the criteria are counted for the concatenation. Those found not meeting with the criteria are processed normally and individually.

*Ignore Output Sequence

100617

Enforce Output Sequence

100618

Apply Output Sequence

100619

Enter Setup

Chapter 6

APPLYING FORMATS FOR DATA EDITING

The scanner allows advanced data editing by applying user-configured editing formats. The whole processed data can be divided into fields by user-specified rules. These fields together with the user-configurable additional fields consist of the data actually sent to the host computer.

[Prefix Code]	[Code ID]	[Length Code]	[Data]	[Suffix Code]	Additional Field(s)
None by default	None by default	None by default	Barcode itself	0x0d by default	

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6.3 Programming Examples 130

6.1 FORMAT SELECTION

6.1.1 ACTIVATE EDITING FORMATS

If you have already configured any editing format before, you may directly apply the editing format. If not, you must start with configuring an editing format first, and then, activate the editing format when it is desired in use.

Editing Format 1

Enable Format 1

101301

*Disable Format 1

101300

Editing Format 2

Enable Format 2

101303

*Disable Format 2

101302

Editing Format 3

Enable Format 3

101305

*Disable Format 3

101304

End Programming Format

Editing Format 4

Enable Format 4

101307

*Disable Format 4

101306

Editing Format 5

Enable Format 5

101309

*Disable Format 5

101308

6.1.2 EXCLUSIVE DATA EDITING

By default, only barcodes found meeting with the criteria are processed by the editing formats. Those found not meeting with the criteria are processed normally.

When “Exclusive Data Editing” is enabled, all barcodes read by the scanner must be processed by the editing formats. If data is found excluded from all enabled editing formats (= not meeting with the specified criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.

Yes

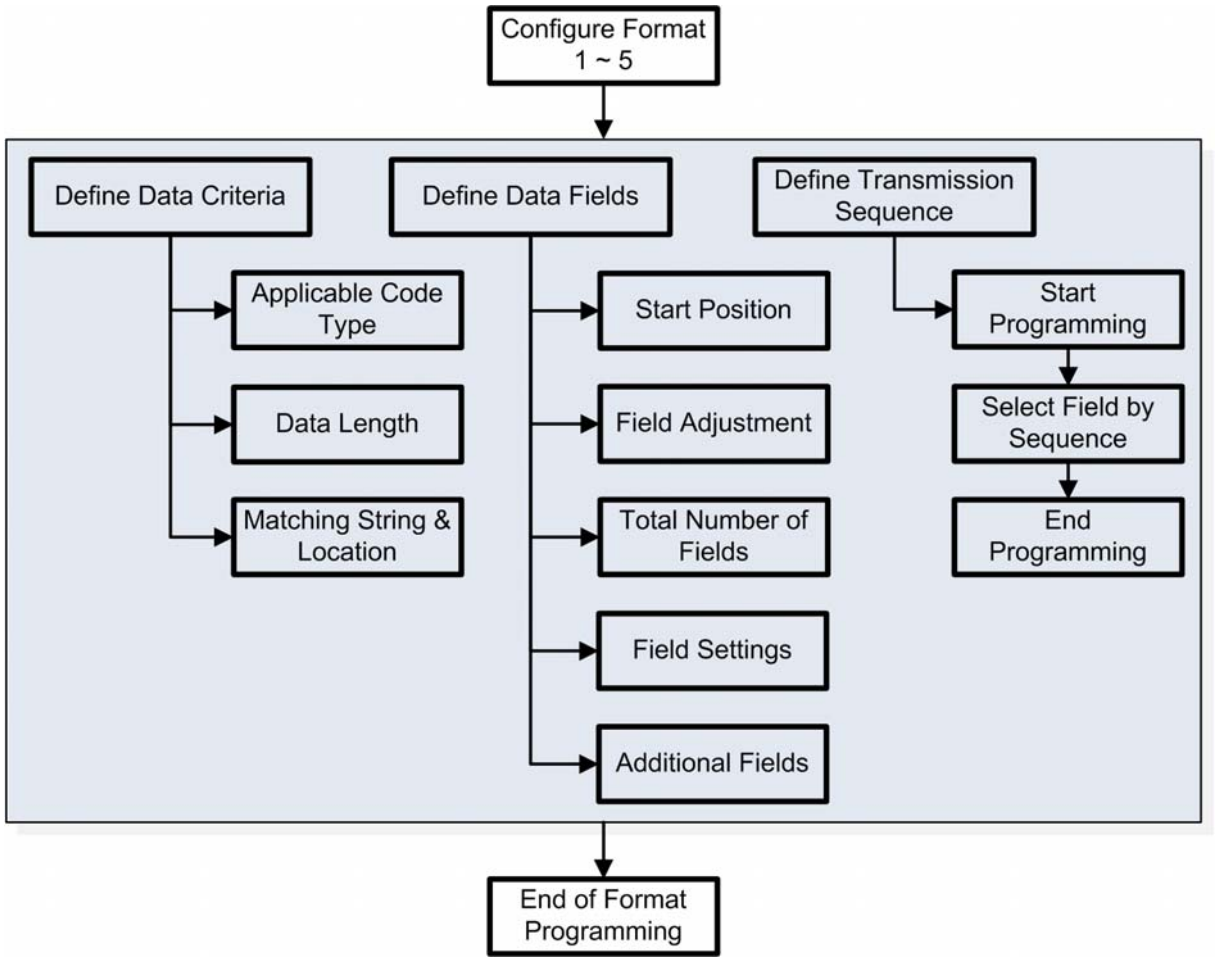
101201

*No

101200

Update

6.2 EDITING FORMAT



End Programming Format

6.2.1 SELECT FORMAT TO CONFIGURE

Start Programming Format

Select one editing format (Format 1~5) and the parameters pertaining to the editing format can then be configured – applicable code type, data length, matching string & location, total number of fields, field settings (field-dividing rule), additional fields, and field transmission sequence.

- Up to five different formats can be specified.

Configure Format 1

109981

Configure Format 2

109982

Configure Format 3

109983

Configure Format 4

109984

Configure Format 5

109985

Note: Before you complete the programming of an editing format, if you have the scanner read any label for parameters other than those pertaining to the editing format, it will automatically abort the programming process.

End Programming Format

After having configured all the desired parameters, you must have the scanner read the “End Programming Format” label, which can be located at the bottom of every even page in this chapter.

End Programming Format

109980

Update

6.2.2 RESTORE DEFAULT FORMAT

You may select an existing editing format and have the defaults restored. The default settings of an editing format are listed below.

Editing format	Defaults
Applicable Code Type	All
Data Length	0 (No qualification.)
Matching String	Disable
Matching String Location	None
Total Number of Fields	1
Field Setting – field-dividing rule	Not configured.
Additional Fields	None
Field Transmission Sequence	F1

Restore Default Format

End Programming Format

6.2.3 DEFINE DATA CRITERIA

Three applicable conditions can be configured to check whether the data read by the scanner can be processed by the particular editing format.

Note: Data editing cannot be performed unless the three conditions are all met.

Applicable Code Type

By default, barcodes of all the supported symbologies will be processed by any editing format, if having been configured and enabled.

*Apply to All

109992

Clear All

109991

Codabar

101513

Code 39

101501

Code 93

101515

Code 128

101517

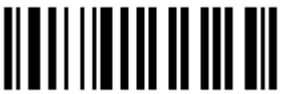
EAN-8

101527

EAN-8 Addon 2

101529

EAN-8 Addon 5



101531

EAN-13

101533

EAN-13 Addon 2

101535

EAN-13 Addon 5

101537

Update

EAN-128 & RSS

101519

French Pharmacode

101505

Italian Pharmacode

101503

Industrial 25

101507

Interleaved 25

101509

Matrix 25

101511

MSI

101545

Plessey

101547

Telepen

101549

UPC-A

101539

UPC-A Addon 2

101541

UPC-A Addon 5

101543

UPC-E

101521

UPC-E Addon 2

101523

UPC-E Addon 5

101525

Data Length

By default, barcodes of any length (character count) are eligible for data editing.

- You may specify a value from 0 to 255.

End Programming Format

- When zero is given to both, the scanner will not perform the length qualification.

1. Read the label below to specify Max. Length or Min. Length separately, and follow steps 2~3.

Max. Length

101561

Min. Length

101560

2. Read the "Decimal Value" label on page 141 for the desired length.
3. Read the "Validate" label on the same page to complete this setting.

Matching String & Location

By default, no matching string is specified, and therefore, it is disabled. You may enable this feature by specifying a matching string; up to four characters are allowed.

- When the Matching String Location is zero, the scanner will only check for the existence of the matching string in the barcode data.
- You may specify a value from 1 to 255 to indicate where the matching string starts in the barcode data.

1. Read the label to specify a matching string.

Matching String …

101562

2. Read the "Hexadecimal Value" label on page 142 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the label to specify the location of the matching string.

Location of
Matching String …

101563

5. Read the "Decimal Value" label on page 141 for the desired location.
6. Read the "Validate" label on the same page to complete this setting.

Update

6.2.4 DIVIDE DATA INTO FIELDS

Start Position

Data can be divided into fields in one of the following direction –

- from head (F1) to tail (F5)
- from tail (F1) to head (F5)

*From Head

101600

From Tail

101601

Field Adjustment

You may apply equal length to all fields, if necessary. It will add “Space” (0x20) to field when data is found shorter than specified.

*No Adjustment

101602

Set Length to adjust fields … (*0)

101603

1. Read the label above to adjust field by length.
2. Read the “Decimal Value” label on page 141 for the desired field length.
3. Read the “Validate” label on the same page to complete this setting.

Total Number of Fields

Data can be divided into at most 6 fields; each of them is numbered from F1 to F6 accordingly. However, only F1~F5 can be configured.

- The total number of fields must be specified correctly. If three fields are configured for the editing format, the data characters after F3 will be assigned to F4 automatically. This feature is quite useful especially when data of variable lengths is processed by editing formats.

*One Field

101590

End Programming Format

Two Fields

101591

Three Fields

101592

Four Fields

101593

Five Fields

101594

Six Fields

101595

Note: The number of configurable fields is always one less than the total number of fields specified. The extra data characters beyond the last field configured will be automatically assigned to the next field.

Update

6.2.5 FIELD SETTINGS

Data eligible for editing formats is divided into fields by user-specified rules – either using the field terminating string or specified field length.

By Terminating String

Specify the field terminating string. Up to two characters are allowed. The scanner will search for the occurrence of this particular string in the data.

- By default, this string will be included in the field. You may discard it.

By Length

Alternatively, you may simply specify the field length. The scanner will assign the next specified number of characters into the field.

Field 1 Setting

Select Field Separator
to Divide Field 1 …

101567

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 142 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101565

Discard Separator

101564

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 1 by Length …

101566

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 141 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

Field 2 Setting

Select Field Separator to Divide Field 2 …

101571

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 142 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101569

Discard Separator

101568

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 2 by Length …

101570

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 141 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

Update

Field 3 Setting

Select Field Separator
to Divide Field 3 …

101575

1. Read the above label to divide field by a specified terminating string.
2. Read the “Hexadecimal Value” label on page 142 for the desired character string.
3. Read the “Validate” label to complete this setting.
4. Read the “Discard Separator” label if the field separator is not desired in the field.

*Include Separator

101573

Discard Separator

101572

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 3 by Length …

101574

1. Read the above label to divide field by length.
2. Read the “Decimal Value” label on page 141 for the desired field length.
3. Read the “Validate” label on the same page to complete this setting.

End Programming Format

Field 4 Setting

Select Field Separator
to Divide Field 4 …

101579

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 142 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101577

Discard Separator

101576

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 4 by Length …

101578

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 141 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

Update

Field 5 Setting

Select Field Separator
to Divide Field 5 …

101583

1. Read the above label to divide field by a specified terminating string.
2. Read the “Hexadecimal Value” label on page 142 for the desired character string.
3. Read the “Validate” label to complete this setting.
4. Read the “Discard Separator” label if the field separator is not desired in the field.

*Include Separator

101581

Discard Separator

101580

If not dividing the field by a specific separator, you may divide it by a specified length.

Divide Field 5 by Length …

101582

1. Read the above label to divide field by length.
2. Read the “Decimal Value” label on page 141 for the desired field length.
3. Read the “Validate” label on the same page to complete this setting.

End Programming Format

Additional Fields

Up to five additional fields can be created for each editing format; each of them is numbered from AF1 to AF5 accordingly.

1. Read the label below to specify an additional field, one at a time.
2. Read the "Hexadecimal Value" label on page 130 for the desired additional field.
3. Read the "Validate" label to complete this setting.

Additional Field 1 …

101584

Additional Field 2 …

101585

Additional Field 3 …

101586

Additional Field 4 …

101587

Additional Field 5 …

101588

- If "Bluetooth HID" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type. Refer to Keyboard Wedge Table.

Key Type		Key Status
Scan Code	Up to 2 scan code values are allowed.	N/A
Normal Key	Up to 4 character strings are allowed. ▸ Default setting	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].

Update

6.2.6 FIELD TRANSMISSION SEQUENCE

After configuring the data fields and additional fields, you must now program the transmission sequence of these fields that comprise the final data. This field transmission sequence can be assigned in any desired order and fields can be assigned multiple times as well.

Note: Up to twelve fields can be assigned.

1) Read the "Start" label to begin with programming the field transmission sequence.

Start (Programming) …

101589

2) Program the transmission sequence by reading the desired fields as well as additional fields.

Field 1

109901

Field 2

109902

Field 3

109903

Field 4

109904

Field 5

109905

Field 6

109906

Additional Field 1

109907

Additional Field 2

109908

Additional Field 3

109909

Additional Field 4

109910

Additional Field 5

109911

End Programming Format

3) Read the “End” label to complete this setting.

End

109994

Update

6.3 PROGRAMMING EXAMPLES

6.3.1 EXAMPLE I

Extract data from the 10th character to the 19th character...

The editing format should be configured as follows:

1. Read the “Enter Setup” label to enter the Configuration Mode.
2. Read the “Configure Format 1” label.
3. Read the “Clear All” and “Code 128” labels for applicable code type.
4. Read the “Three Fields” label.
5. Read the “Divide Field 1 by Length” label, and set length to 9.

Field 1 data starts from the 1st character to the 9th character.

6. Read the “Divide Field 2 by Length” label, and set length to 10.

Field 2 data starts from the 10th character to the 19th character.

7. Read the “Start (Programming)” label to program the transmission sequence.
8. Read the “Field 2” label.
9. Read the “End” label to complete the transmission sequence setting.
10. Read the “End Programming Format” label to complete the setting of Editing Format 1.
11. Read the “Enable Format 1” label to apply Editing Format 1 to Code 128.
12. Read the “Update” label to exit the Configuration Mode.

End Programming Format

5.3.2 EXAMPLE II

Extract the date code, item number, and quantity information from barcodes.

Data in a barcode is encoded like this:

- From the 1st character to the 6th character is the date code.
- From the 7th character to the dash '-' character is the item number.
- After the dash '-' character is the quantity information.

Data will be transmitted like this:

- The item number goes first, then a TAB character, followed by the date code, then another TAB character, and finally the quantity information.

The editing format should be configured as follows:

1. Read the "Enter Setup" label to enter the Configuration Mode.
2. Read the "Configure Format 2" label.
3. Read the "Three Fields" label.
4. Read the "Divide Field 1 by Length" label, and set length to 6.

Field 1 data starts from the 1st character to the 6th character.

5. Read the "Select Field Separator to Divide Field 2" label, and use a dash '-' character.

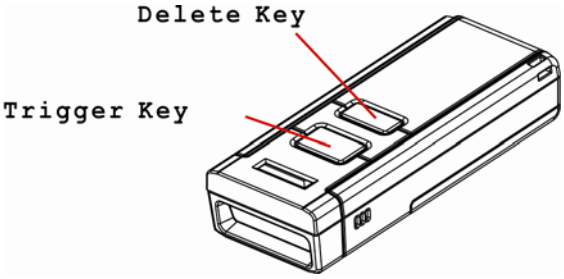
Field 2 data starts from the 7th character until the dash '-' character is met.

6. Read the "Additional Field 1" label, and use a tab character for the field.
7. Read the "Start (Programming)" label to program the transmission sequence.
8. Read the "Field 2", "Additional Field 1", "Field 1", "Additional Field 1", "Field 3" labels.
9. Read the "End" label to complete the transmission sequence (F2 A1 F1 A1 F3) setting.
10. Read the "End Programming Format" label to complete the setting of Editing Format 1.
11. Read the "Enable Format 2" label to apply Editing Format 2 to all code types.
12. Read the "Update" label to exit the Configuration Mode.

Update

End Programming Format

SPECIFICATIONS



Optical Characteristics	1660
Scan Engine	Non-contact type
Optical Sensor	CCD, 2500 pixels
Light Source	Visible red LED
Wavelength	625 nm

RF Characteristics	
Bluetooth Module	Bluetooth Specification Version 2.0, Class 3
Coverage (line-of-sight)	Up to 10 meters
Profiles Supported	Serial Port Profile (SPP), Human Interface Device Profile (HID)

Physical Characteristics	
Color	Dark grey
Switch	Push-button switch, plus [Delete] key
Dimensions	95 mm (L) 35 mm (W) 20 mm (H)
Weight	Approx. 50 g

Electrical Characteristics	
Battery	2 AAA Alkaline batteries

Environmental Characteristics		
Temperature	Operating	0 °C to 50 °C
	Storage	-20 °C to 60 °C
Humidity (Non-condensing)	Operating	10% to 90%
	Storage	5% to 95%

Update

Electrostatic Discharge	± 15 kV air discharge, ± 8 kV direct discharge
EMC Regulation	FCC, CE, C-Tick, MIC, BSMI TELEC, NCC, RSS-210

Programming Support

Configuration via Setup Labels	Use setup labels or host serial commands.
Software	Windows-based ScanMaster
Firmware upgradeable	Download firmware updates via the download utility.

Enter Setup

Appendix I

UPGRADING FIRMWARE

You can only upgrade firmware of one Bluetooth scanner at a time. For example, you must turn off each of the rest 1660 scanner when there is more than one scanner connected to your computer via a Bluetooth dongle.

Note: In case it fails downloading due to low battery, make sure the targe scanner is loaded with good alkaline batteries and the battery charge is enough.

1) If not using a Bluetooth-enabled notebook, connect the Bluetooth dongle to your computer via the USB port.

2) Refer to 3.2 Connecting via Bluetooth Dongle for the target scanner to accept the connection request from your computer.

   Read the following labels in sequence to configure the scanner to use Bluetooth Serial Port as output interface.

Enter Setup

Activate Bluetooth SPP
(and read labels for PIN code …)

100003

Update

109999

3) Read the following labels in sequence for the scanner to enter the download mode.

   The scanner will respond with beeps to indicate it is ready for downloading.

Update

Enter Setup

Download

109997

4) Run the download utility “ProLoad.exe” or “Download.exe” on your computer.

(Download.exe requires version 2.3 or later!)

Open the firmware update “*.shx”, and select the correct COM port.

- Baud rate — 115,200 bps
- Data bit — 8
- Parity — None
- Flow control — None

5) The scanner will automatically restart itself when upgrading firmware is completed successfully.

Enter Setup

Appendix II

HOST SERIAL COMMANDS

SERIAL COMMANDS

#@ nnnnnn <CR>

Purpose	To configure the scanner.
Remarks	nnnnnn – the six digits of command parameters. For example, “109952” is to list the current Code ID settings.

List Page 3

Serial Command

“0x23” + “0x40” + “0x31” + “0x30” + “0x39” + “0x39” + “0x35” + “0x32” + “0x0d”

#@----<CR>

Purpose	To halt the scanner.
Remarks	“0x23” + “0x40” + “0x2d” + “0x2d” + “0x2d” + “0x2d” + “0x0d”

#@....<CR>

Purpose	To resume operation.
Remarks	“0x23” + “0x40” + “0x2e” + “0x2e” + “0x2e” + “0x2e” + “0x0d”

#@////<CR>

Purpose	To respond with a beep.
Remarks	“0x23” + “0x40” + “0x2f” + “0x2f” + “0x2f” + “0x2f” + “0x0d”

#@TRIGOFF<CR>

Purpose	Disable software trigger
Remarks	“0x23” + “0x40” + “0x54” + “0x52” + “0x49” + “0x47” + “0x4f” + “0x46” + “0x46” + “0x0d”

#@TRIGON<CR>

Purpose	Enable software trigger
Remarks	“0x23” + “0x40” + “0x54” + “0x52” + “0x49” + “0x47” + “0x4f” + “0x4e” + “0x0d”

Update

EXAMPLE

Send the serial commands via Bluetooth SPP. For example, run HyperTerminal on the host computer.

- For the scanner to change the beeper to medium volume and beep –

  #@101011<CR>

  #@////<CR>

- For the scanner to change the beeper to minimal volume and beep –

  #@101010<CR>

  #@////<CR>

- For the scanner to change the beeper frequency to 8 kHz (for Good Read Beep only) and beep –

  #@101001<CR>

  #@////<CR>

- For the scanner to change the beeper length to longest (for Good Read Beep only) and beep –

  #@101008<CR>

  #@////<CR>

Enter Setup

Appendix III

KEYBOARD WEDGE TABLE

	0	1	2	3	4	5	6	7	8
0		F2	SP	0	@	P	`	p	⓪
1	INS	F3	!	1	A	Q	a	q	①
2	DLT	F4	"	2	B	R	b	r	②
3	Home	F5	#	3	C	S	c	s	③
4	End	F6	$	4	D	T	d	t	④
5	Up	F7	%	5	E	U	e	u	⑤
6	Down	F8	&	6	F	V	f	v	⑥
7	Left	F9	'	7	G	W	g	w	⑦
8	BS	F10	(	8	H	X	h	x	⑧
9	HT	F11	)	9	I	Y	i	y	⑨
A	LF	F12	*	:	J	Z	j	z	
B	Right	ESC	+	;	K	[	k	{	
C	PgUp	Exec	,	<	L	\	l	|	
D	CR	CR*	-	=	M	]	m	}	
E	PgDn		.	>	N	^	n	~	
F	F1		/	?	O	_	o	Dly	ENTER*

Note: (1) ⓪~⑨: Digits of numeric keypad.
(2) CR*/Send/ENTER*: ENTER key on the numeric keypad.

KEY TYPE

If "Bluetooth HID" is configured for interface, Key Type and Key Status will then become applicable.

*Normal

Update

Scan Code

109936

KEY STATUS

Decide whether or not to change key status when “Normal Key” is selected for Key Type.

Add Shift

109930

Add Left Ctrl

109931

Add Right Ctrl

109933

Add Left Alt

109932

Add Right Alt

109934

USER-DEFINED SCAN CODE

1) Read the “Set Scan Code” label to define new scan code.

Set Scan Code

109988

2) Read the “Hexadecimal Value” label on page 142 for the desired character string.

3) Read the “Validate” label to complete this setting.

4) Read the “Confirm” label to confirm the action.

Confirm

109989

Enter Setup

Appendix IV

NUMERAL SYSTEMS

DECIMAL SYSTEM

Decimal

0

109900

1

109901

2

109902

3

109903

4

109904

5

109905

6

109906

7

109907

8

109908

9

109909

Validate the Values

Validate

109994

Update

Abort

HEXADECIMAL SYSTEM

Hexadecimal

0

109900

1

109901

2

109902

3

109903

4

109904

5

109905

6

109906

7

109907

8

109908

9

109909

A

109910

B

109911

C

109912

D

109913

E

109914

F

109915

Enter Setup

Validate the Values

Validate

109994

ASCII TABLE

	0	1	2	3	4	5	6	7	
0		DLE	SP	0	@	P	`	p	
1	SOH	DC1	!	1	A	Q	a	q	
2	STX	DC2	"	2	B	R	b	r	
3	ETX	DC3	#	3	C	S	c	s	
4	EOT	DC4	$	4	D	T	d	t	
5	ENQ	NAK	%	5	E	U	e	u	
6	ACK	SYN	&	6	F	V	f	v	
7	BEL	ETB	'	7	G	W	g	w	
8	BS	CAN	(	8	H	X	h	x	
9	HT	EM	)	9	I	Y	i	y	
A	LF	SUB	*	:	J	Z	j	z	
B	VT	ESC	+	;	K	[	k	{	
C	FF	FS	,	<	L	\	l	|	
D	CR	GS	-	=	M	]	m	}	
E	SO	RS	.	>	N	^	n	~	
F	SI	US	/	?	O	_	o	DEL	

ENTERING PIN CODE FOR BLUETOOTH CONNECTION

By default, the Bluetooth PIN code is set to “0000”. Maximum 16 characters are allowed.

Note: When using Bluetooth HID, some driver of Bluetooth dongle may not support pre-defined PIN code for authentication. In this case, make sure you disable authentication before pairing. The host PIN code will be displayed on the computer screen. Have the scanner read the setup barcode “Enter PIN Code in Decimal” to input the matching PIN code quickly.

Enter PIN Code in Hexadecimal …

Enter PIN Code in Decimal …

1) Read one of the labels above to specify the PIN code, in decimal or hexadecimal.
2) Read the “Decimal Value” label on page 141 or the “Hexadecimal Value” label on page 142 for the desired digits or character string.
3) Read the “Validate” label to complete this setting.

Enter Setup